

# The Iron Age

A CHILTON

PUBLICATION

NATIONAL METALWORKING WEEK

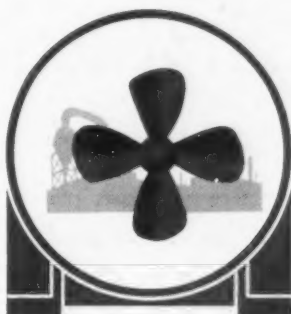
May 28, 1953

MAY 28 1953

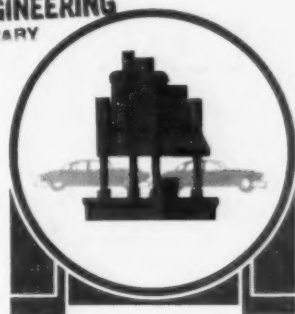
EAST ENGINEERING  
LIBRARY



Pumping



Ventilating



Metal Forming

## Electric Motors *for every industry*

When you need electric motors . . . in any rating, or frame type . . . one or a thousand . . . *always* look for the Fairbanks-Morse Seal. For over 120 years it has stood for the finest in manufacturing integrity to all industry.

Fairbanks, Morse & Co., Chicago 5, Illinois.



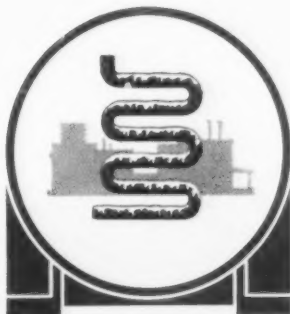
### FAIRBANKS-MORSE

a name worth remembering when you want the best

ELECTRIC MOTORS AND GENERATORS • MAGNETOS • DIESEL LOCOMOTIVES AND ENGINES  
PUMPS • SCALES • HOME WATER SERVICE EQUIPMENT • RAIL CARS • FARM MACHINERY



Fairbanks-Morse QZK Motors—in a complete horsepower range.



Refrigeration



Oil Well Pumping

UNIVERSITY OF MICHIGAN LIBRARIES

# Removes 14% more metal with **ROTOR CHIPPERS**



**T**HIS steel mill tried Rotor C-30 Powerplus Chippers for 3 months and proved their superiority by time studies which showed 14% more metal removed from 45 to 55 carbon shell stock than with former hammers. Operators say they like them better too—they're *shorter, lighter, and they handle easier.*


Put these new Rotor Chippers to the test on *your* operations! Ask for a demonstration or trial. No obligation. Write for free copy of Catalog 37.

## **ROTOR CHIPPER FACTS**

**LIGHTER** . . . 1½ to 3 lbs. less than other chippers.


**SHORTER** . . . 1" to 2" shorter . . . easier to get into crowded corners.

**MATCH YOUR JOB** . . . Each basic model can be adapted to three kinds of work.



**AIR**

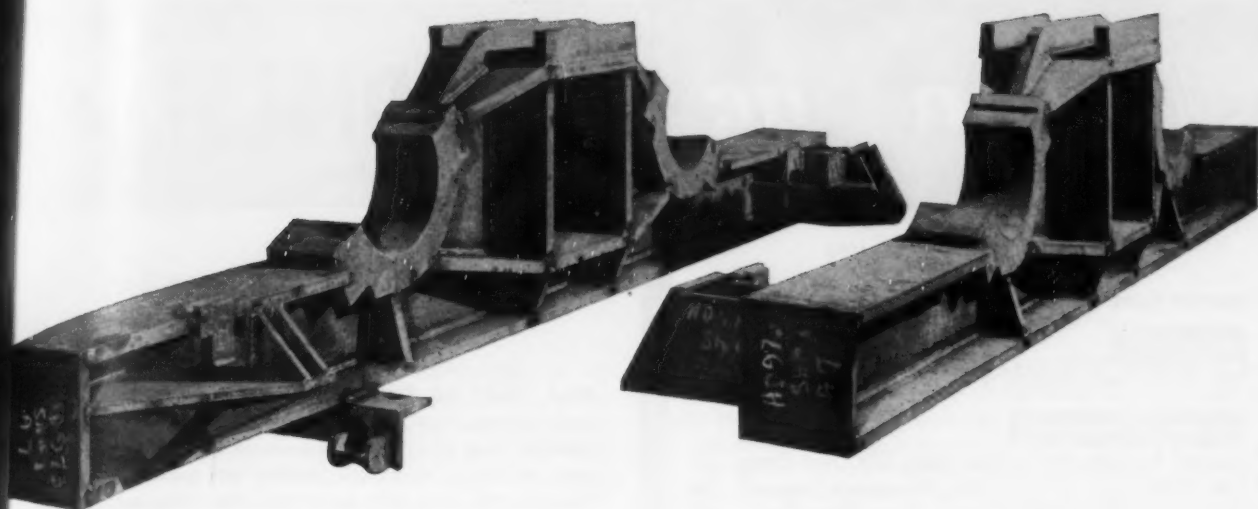
**THE ROTOR TOOL CO.**  
CLEVELAND, OHIO



**HIGH CYCLE**

**UNBIASED ANALYSIS OF PORTABLE TOOL PROBLEMS**





# Side Frames for Ore Car Made by Welding

**WEIGHT: 2624 LB EACH**

These complicated parts are side frames for an ore-transfer car. The two side frames, shown from front and rear, are identical. They are 12 ft, 6 in. long; 2 ft, 10 in. high; and 2 ft wide. They were made by welding sections of plate steel, in varying thicknesses, in Bethlehem's Weldments Shop.

If you are a manufacturer of simple or complicated machinery, or machine parts, chances are good that you can profit through these advantages of Bethlehem Weldments:

## 4 BIG ADVANTAGES OF BETHLEHEM WELDMENTS

**1. ECONOMY.** With Bethlehem Weldments, excess weight is eliminated, without sacrificing rigidity. Nine times out of ten, a reduction in weight means a lower manufacturing cost for your product.

**2. VERSATILITY.** Bethlehem Weldments can be made in unlimited sizes and shapes. They can be used either as simple parts, or as sections of assemblies.

**3. FREEDOM OF DESIGN.** These weldments can be made in practically any design, as the steel can be bent, pressed or shaped in advance of welding, without harm to its physical structure.

**4. VARIED USES.** While Bethlehem Weldments are frequently used alone, they can also be combined effectively with forgings or castings.

*If you would like to discuss ways in which you can put weldments to profitable use, get in touch with the nearest Bethlehem office.*

BETHLEHEM STEEL COMPANY  
BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation, Export Distributor: Bethlehem Steel Export Corporation



# BETHLEHEM WELDMENTS

May 28, 1953

\* Starred items are digested at the right.

## EDITORIAL

You And Your President .....	7
------------------------------	---

## NEWS OF INDUSTRY

*Special Report: Appliances May Dip, Not Drop .....	63
*Raw Materials: Is Clay New Aluminum Source? .....	64
*Marketing: Steel Extras Done, Bases Start Up .....	65
*Management: Industry Pays for Play .....	66
*Fuel: Williston Oil Fever Back to Normal .....	67
*Production: Furnaces Will Be Hot Through '53 .....	69
*Expansion: Raise Curtain on New Alloy Plant .....	70
*Defense: Military Spending Stays High .....	75
Personnel: Iron Age Salutes .....	115
Iron Age Introduces .....	117

## NEWS ANALYSIS

Newsfront .....	61
*Automotive Assembly Line .....	82
*This Week in Washington .....	87
West Coast Report .....	91
Machine Tool High Spots .....	93

## TECHNICAL ARTICLES

*Low-Temperature Treatments Improve Products .....	121
*Materials Handling Show Highlights .....	126
*Tin Assay Shortcut Speeds Control .....	130
*Grinding + Mechanization Doubles Output .....	132
*Meehanite Rolls Used For Heavy-Duty Bending .....	135
New Mill Rolls Uranium On Production Basis .....	138
Technical Briefs .....	140

## MARKETS & PRICES

*The Iron Age Summary—Steel Outlook .....	147
Market Briefs .....	148
*Nonferrous Markets .....	150
Iron and Steel Scrap Markets .....	154
Comparison of Prices .....	158
Steel Prices .....	160

## REGULAR DEPARTMENTS

Dear Editor .....	9
Fatigue Cracks .....	11
Dates to Remember .....	13
Free Publications .....	97
New Equipment .....	102

INDEX OF ADVERTISERS .....	183
----------------------------	-----

Copyright 1953, by Chilton Co. (Inc.)

THE IRON AGE, published every Thursday by the CHILTON CO. (INC.), Chestnut & 58th Sts., Philadelphia 29, Pa. Entered as second class matter, Nov. 8, 1932, at the Post Office at Philadelphia under the act of March 3, 1879. \$8 yearly in United States, its territories and Canada; other Western Hemisphere Countries, \$15; other Foreign Countries, \$25 per year. Single copies, 35¢. Annual Review and Metal Industry Facts Issue, \$2.00. Cables: "Ironage," N. Y.

Address mail to 100 E. 42 St., N. Y. 17, N. Y.

## NEWS DEVELOPMENTS

### WILL CLAY BE THE NEW ALUMINA SOURCE—P. 64

Independence from foreign sources of aluminum ore is one possible result of a process announced by Lobeth Corp. Firm says continuous electrolytic method can produce high-purity alumina from clay with practically any silica content. Preliminary cost studies by Lobeth indicate lower costs.

### INDUSTRY HITS HOME RUN WITH RECREATION—P. 66

Some 20,000 companies sink \$163 million annually into organized sports program for employees. And the workers are also paying their share of the playtime bill. Researchers estimate a 16 pct growth since 1940. Aims of management are improved morale, higher efficiency and better community relations.

### WILLISTON BASIN OIL BOOM CALMS DOWN — P. 67

Initial black gold fever of 1951 has yielded to conservative development in the Williston Basin. The wildcat entrepreneur with the mortgaged drilling rig is the basin's vanishing citizen. Research and exploratory drilling are on the increase. Expansion has whetted the area's appetite for oil well steel.

### LIFT WRAPS FROM NEW FERROALLOY PLANT — P. 70

Last week Electromet allowed a peep at its brand new alloy plant at Marietta, O. Eyepoppers included: (1) New "Simplex" ferrochrome with carbon as low as 0.01 pct. (2) a tonnage process for making almost pure chrome, (3) huge electrolytic manganese facilities, (4) vast expansion on other alloys.

### REUTHER SIRES ANOTHER LIVING DOCUMENT — P. 82

After a 12-hour session General Motors and the UAW told of the amiable settlement of labor differences. It was a victory for Walter Reuther's living document philosophy—and incidentally he won everything he asked for. Settlement details are listed. GM supplier strikes ended abruptly while others continued.

### EXCESS PROFITS TAX—BAD BUT PROFITABLE — P. 87

Behind the currently unpromising outlook for tax reduction is the hope that Congress can cut more from the budget before June 30. If this is possible, then tax cuts for the next fiscal year may go through on schedule. Expiration of the excess profits tax is no longer certain for June 30.

# of the Week in Metalworking

## ENGINEERING & PRODUCTION

### COLD TREATING AIDS PRODUCTS, PROCESSES—P. 121

Cold treating of metal products aids fabrication in many ways. Dimensional stabilization of precision parts, improved strength and accuracy of machine tools and parts are some of its advantages. Expansion fitting by refrigeration is a clean process in which there is no distortion or hardness reduction.

### MATERIALS HANDLING SHOW HIGHLIGHTS—P. 126

Engineers and experts attending the Fifth Annual Materials Handling Show were amazed by the progress made in the last two years. Hydraulic steering, pallet dispensers, electronic scales and torque drives attracted a considerable amount of attention. Over 350 exhibitors participated.

### NEW TIN ASSAY SHORTCUT SPEEDS CONTROL—P. 130

With this shortcut method assay control data on tin in brass or bronze can be obtained more quickly. Checked against standard methods of assaying tin in Bureau of Standards brass and bronze alloys and cutting brass alloys, the method yields close approximations to certificate values.

### CASTING CLEANING METHODS RAISE OUTPUT—P. 132

A casting cleaning department, modernized with grinding equipment and mechanized conveyors, has doubled output with half as many men. More thorough cleaning has sharply reduced rejects. Only one-third the floor space is now required. Savings after one year justify the cost of the setup.

### CAST MEEHANITE FOR PLATE BENDING ROLLS—P. 135

By designing and casting large plate bending rolls of Meehanite metal, a plant's capacity for rolling boiler plate was increased from 1 in. to 2½ in. It saved the high cost of alloy steel forgings originally thought necessary. Preliminary tests confirmed that physical properties were adequate.

### NEXT WEEK—MASS PRODUCTION OF QUALITY GEARS

Mass production of top quality automotive gears requires close liaison between design, heat treating and production departments. Fairfield Mfg. Co. had this in mind when it set up its new plant. Production, in better than 70 different steels and alloy grades, ran over 1 million lb last year.

## MARKETS & PRICES

### GOOD YEAR FOR APPLIANCES AS OUTPUT BOOMS—P. 63

The sales and production pace of appliances may slow from a sprint to a gallop but a good year seems in the making. Some signs of weakness are cropping up but producers still show a cautious optimism. Inventories are low, provide a production cushion. Appliance steel demand will stay strong this year.

### STEEL BASE INCREASE TO FOLLOW WAGE TALKS—P. 65

Increases in steel extras are over, but a general raise on base prices is expected to follow settlement of USW demands for higher wages. Consumers are still unable to estimate how much costs have gone up as a result of upward revision of extras. Divisions of large users are gathering figures for study.

### SEE HOT FURNACE BUSINESS THROUGH '53—P. 69

Industrial furnace manufacturers agree that business will continue at high levels through the rest of the year. Economist Dr. Neil Carothers told members of the Industrial Furnace Manufacturers Assn. he believed a depression is inevitable—and it can not be stopped by the government.

### DEFENSE SPENDING STAYS AT HIGH LEVEL — P. 75

Mr. Taxpayer can look forward to saving about \$5.2 billion on the revised Defense Dept. budget. But it won't make much difference in military and defense spending over the next 12 months—or the next 24. Carryover funds will fatten up the trimmed appropriation for the new fiscal year.

### STEEL STOCKPILES SLIM FOR MAJOR USERS—P. 147

Major users of steel find their inventories below normal and unbalanced. Automotive and appliance industries, exerting most of the pressure for steel, remain unsatisfied. They report inventories ranging from 15 to 30 days. Steel is still the limiting factor on output in Detroit auto and body plants.

### GSA OKAYS HARVEY ALUMINUM CONTRACT—P. 150

First contract signed in the government's uncertain third round aluminum expansion went to Harvey Machine Co. Others still not certain. Senate gets bill for 1-year suspension of aluminum import tariff. Alcan sets up metal reserve for U. S. independents. Aluminum stockpiling to go on in third quarter.

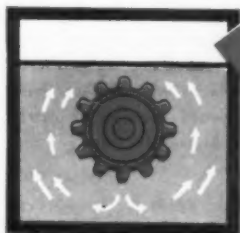
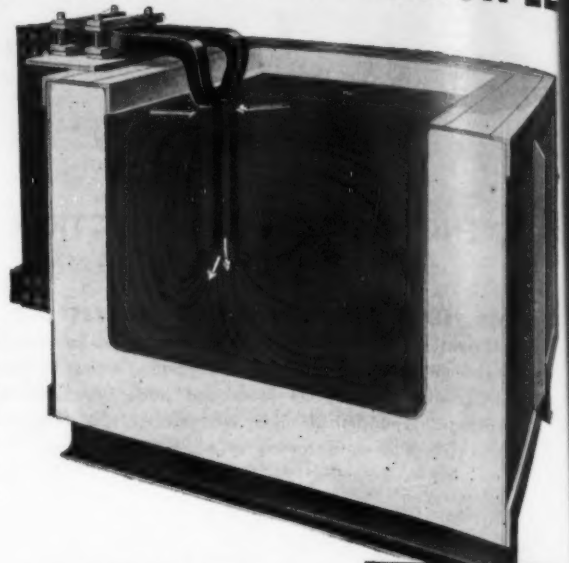
STEEL INDUSTRY IN AMERICA



# THE MOST EFFICIENT HEAT TREATING PRINCIPLE

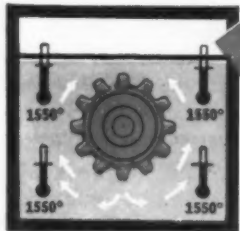
...for CARBURIZING • CYANIDE HARDENING  
NEUTRAL HARDENING • ANNEALING OR  
HARDENING STAINLESS STEEL • BRAZING • HARDEN-  
ING HIGHSPEED STEEL • AUSTEMPERING • MARTEMPER-  
ING • PROCESS ANNEALING • CYCLIC ANNEALING  
DRAWING (TEMPERING) • SOLUTION HEAT TREAT-  
MENT • DESCALING • DESANDING • CLEANING

In the Ajax Electric Salt Bath, utilizing immersed electrodes, all heat is generated within the bath itself—the liquid salt acting as a "resistor". Electrodynamic forces produce vigorous circulation throughout the bath, in the downward motion indicated. This is precisely opposite to the upward thermal flow—dependent on a temperature difference in a bath—which exists in other salt bath furnaces. Only Ajax offers electrodynamic circulation!



## RAPID HEATING BY CONDUCTION

The rate of heating depends only on the heat conductivity of the work itself. Thus, the Ajax Salt Bath Furnace heats work 4 to 6 times faster than a radiation type or forced convection furnace.



## UNIFORM HEATING

The liquid salt completely surrounds the work and the automatic stirring action transmits uniform heat to all surfaces simultaneously. No other method delivers such heating uniformity—within 5° F. or less at any part of the bath.



## NO ATMOSPHERE PROBLEMS

The Ajax Electric Salt Bath Furnace eliminates all atmosphere control problems. Scaling, oxidation and decarb are avoided. First cost of gas generating equipment as well as its operating expense are eliminated.



## AUTOMATIC PREHEATING

When a cold piece of metal is immersed, a "cocoon" of frozen salt forms around it instantly. This layer serves as a temporary insulator, preventing temperature shock and too sudden heating. The frozen salt melts in a minute or less and the work then heats rapidly to bath temperature.

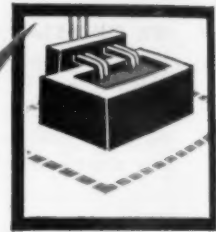
## BUOYANCY THAT MINIMIZES DISTORTION

Although the work sinks readily into the liquid salt, the bath nevertheless supports it to a marked degree. In effect, the work weighs appreciably less when immersed and this tends to prevent distortion and warpage.



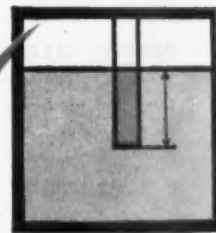
## MORE PRODUCTION IN LESS FLOOR SPACE

Because an Ajax furnace heats work so much faster—and because it eliminates the need for atmosphere generators and similar bulky auxiliary equipment, a proportionately smaller amount of floor space is required to handle a given volume of work.



## SELECTIVE HEATING

Because of its rapid heating rate, only that portion of the work immersed in the bath is heated. Just dip and treat any desired portion of any metal part or assembly.



## NO SKILLED LABOR

Operation is so entirely automatic, so closely controlled by the Ajax furnace itself, that even an unskilled operator can handle full production.



72 pages of factual heat treating data! Write for Catalog 116 on your company stationery.



# AJAX ELECTRIC SALT BATH FURNACES

AJAX ELECTRIC COMPANY, INC. 904 Frankford Ave. Philadelphia 23, Pa.  
The World's Largest Manufacturer of Electric Heat Treating Furnaces Exclusively



EDITORIAL STAFF

Managing Editor George F. Sullivan  
Technical Editor Darwyn I. Brown  
News-Markets Editor Wm. Y. Packard  
Asst. Technical Editor W. G. Patton  
Machinery Editor E. C. Beaudet  
Asst. News Editor Theodore Metaxas  
Associate Editors: H. W. Van Camp,  
P. J. Winters, R. L. Hatschek, W. B.  
Olson, G. G. Carr, E. C. Kellogg, J. J.  
Obert, Art Director: Carl Cerminaro;  
Regional Editors: K. W. Bennett, Chi-  
cago; R. D. Raddant, Detroit; Robert  
M. Lutz, Cleveland; J. B. Delaney, Pitts-  
burgh; T. M. Rahan, San Francisco; G.  
H. Baker, A. K. Rannella, R. M. Stroupe,  
Washington; Editorial Assistants: L.  
Bress, M. Perrone, C. M. Markart; Cor-  
respondents: F. L. Allen, Birmingham;  
N. Levenson, Boston; R. M. Edmonds,  
St. Louis; James Douglas, Seattle; J. R.  
McDowell, Los Angeles; F. Sanderson,  
Toronto; F. H. Harley, London, En-  
gland; Chilton Editorial Board: Paul  
Wooton, Washington representative.

BUSINESS STAFF

CHARLES R. LIPPOLD  
Director of Advertising Sales

Production Manager B. H. Hayes  
Director of Research Oliver Johnson  
Circulation Mgr. William M. Coffey  
Promotion Manager James A. Crites  
Asst. Dir. of Research Wm. Laimbeer

REGIONAL BUSINESS MANAGERS

Chicago 2.....S. J. Smith, T. H. Barry  
1 N. LaSalle St. Franklin 2-0203  
Cleveland 14.....Robert W. Watts  
1016 National City Bank Bldg.  
Main 1-2263  
Columbus 15, Ohio.....Harry G. Mumm  
LaVeque-Lincoln Tower Main 3764  
Detroit 2.....Pelce Lewis  
103 Pallister Ave. Trinity 1-3120  
Los Angeles 28.....R. Raymond Kay  
2420 Chermoya Ave. Granite 0741  
New York 17.....C. H. Ober, C. T. Post  
100 E. 42nd St. Oxford 7-3400  
Philadelphia 39.....B. L. Herman  
56th & Chestnut Sts. Granite 4-5600  
Pittsburgh 22.....J. M. Spackman  
1502 Park Bldg. Atlantic 1-1931  
W. Hartford 7.....Paul Bachman  
62 LaSalle Rd. Hartford 32-0486

OTHER EDITORIAL OFFICES

San Francisco 11.....24 California St.  
Washington 4.....National Press Bldg.  
Circulation Representatives: Thomas  
Scott, James Richardson.  
One of the Publications Owned and  
Published by Chilton Co., Inc., Chest-  
nut & 56th Sts., Philadelphia 39, Pa.

OFFICERS AND DIRECTORS

JOS. S. HILDRETH, President  
Vice-President: Everitt B. Terhune, P.  
M. Fohrendorf, G. C. Busby, Harry V.  
Duffy, William H. Vailor, Treasurer;  
John Blair Moffett, Secretary; George  
T. Hook, Maurice E. Cox, Tom C.  
Campbell, Frank P. Tighe, L. V. Row-  
lands, Robert E. McKenna, Directors.  
George Malswinkle, Asst. Treasurer.

Indexed in the Industrial Arts Index  
and the Engineering Index.



Society of  
Business Magazine  
Editors



Controlled  
Circulation  
Audit



National  
Business  
Publications

Editorial

The Iron Age

FOUNDED 1854

## You And Your President

**Y**OUR President is not a professional politician. It is doubtful if he ever will be one. When he talks about hopes, strength, peace, cooperation, honesty, integrity and freedom that's how he feels.

The words your President uses are honest, practical yardsticks of his future actions and decisions. They are not a political speech, a play on words, a bid for fame or groundwork for re-election.

What are some of these simple things your President believes? Here are a few which should allay fears for your country's security:

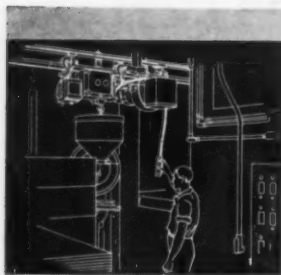
- ¶ Our strength demands healthy two-way trade with our allies. We cannot long enjoy freedom without it.
- ¶ National security requires an industrious and productive America. Here is the vital source of all our military strength.
- ¶ There is no reason to believe that Soviet policy has changed. The Soviet's hope and purpose is to destroy freedom everywhere.
- ¶ Free nations should hope for the best and arm and be ready for the worst.
- ¶ Our danger point cannot be fixed or confined to one specific instant. We live in an age of peril. To live through it our thoughts and plans must not undermine our freedom as we strive to defend it.
- ¶ In vigilantly watching the military front we must not be blind to the domestic front. A crippled industry would rank with a lost battle—so would a demoralized working force.
- ¶ There is no such thing as maximum security short of total mobilization. This is not the way to defend America. It would be a garrison state.
- ¶ A defense strong enough both to discourage aggression and beyond this to protect the nation while it mobilizes in the event of aggression is the only honest workable formula.

Your President is no sensationalist. He favors no one group over the other. He wants a sound and realistic financial policy for your government. His road in carrying out what he believes—and what he thinks you believe—will be tough and strewn with criticism.

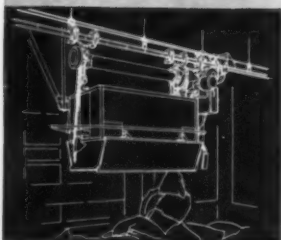
He will stand alone many times in this age of danger—but he has stood alone before. That is his great strength.

*Tom Campbell*

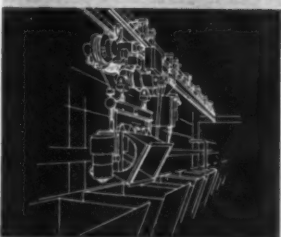
Editor



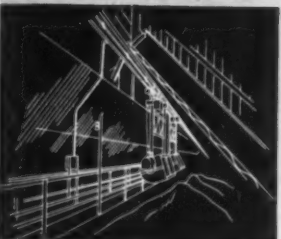
Dispatch  
to multiple  
stations



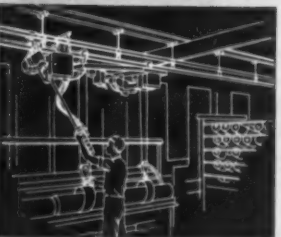
Delivery  
to fixed  
stations



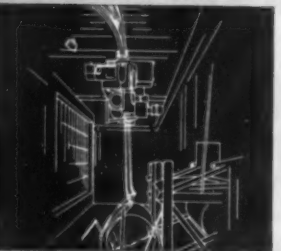
Delivery to  
multiple  
stations



Delivery to  
movable  
stations



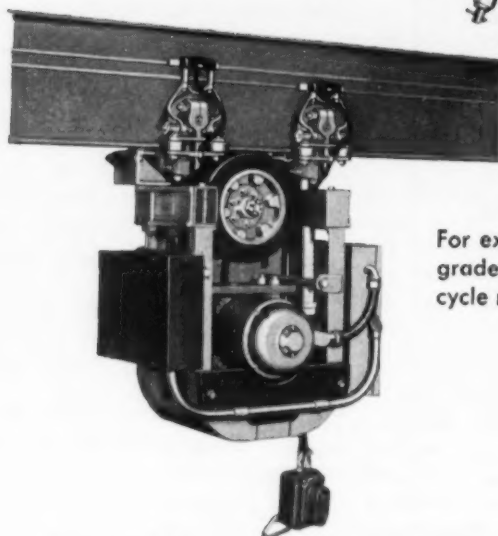
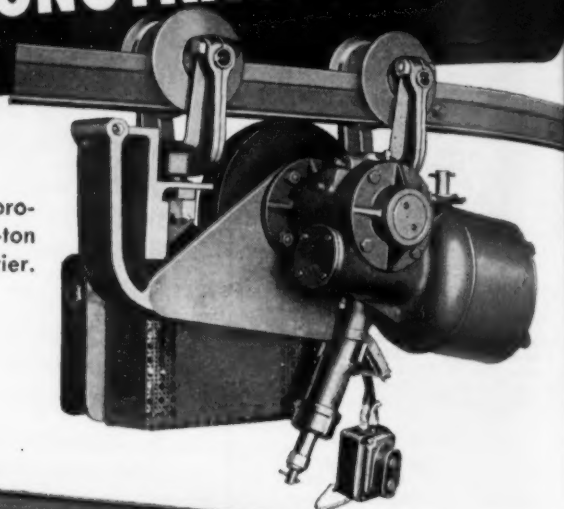
Selective  
dispatch  
between  
multiple  
stations



Load and  
delivery to  
multiple  
stations

## 2 New AMERICAN MONORAIL MONOTRACTORS

For low cost propul-  
sion of a 1-ton  
hoist or carrier.



For extremely heavy-  
grade speed or duty-  
cycle requirements.

To propel heavy loads or automatic carriers on overhead monorail systems, here are two new American MonoRail MonoTractors. Through the application of simple electrical and mechanical devices, American MonoTractor Units perform a wide variety of automatic handling operations.

While unique in many features, such systems are built mainly from standard units. MonoTractors can be applied to carriers operating on any smooth bottom track. An American MonoRail Engineer is available for consultation in every important industrial area.

SEND FOR BULLETIN AD-1

THE AMERICAN **MONORAIL** COMPANY

13103 ATHENS AVENUE

CLEVELAND 7, OHIO

# Dear Editor:

## The Happy Gambler

Sir:  
We very much enjoyed reading the editorial "The Happy Gambler" in one of the recent issues of THE IRON AGE.

We would greatly appreciate receiving six copies of this editorial.

H. O. CADMUS

Noranda Industrial Corp.  
New York

## Degasify Magnesium

Sir:  
In the May 7 issue, on the News-front page, you mentioned a new compound which is being used to remove entrapped hydrogen from magnesium. We would very much appreciate learning what this compound is and where to obtain it.

A. B. CHERETON  
Chief Engineer

Portul Products Corp.  
Benton Harbor, Mich.

Further information on this new compound can be obtained from the American Metallurgical Products Co., 3600 Forbes St., Pittsburgh 13, Pa.—Ed.

## Electronic Memory Machine

Sir:  
We would appreciate your forwarding us information concerning the electronic memory machine which was discussed on p. 71 of your Apr. 9 issue.

J. A. WALLACE  
Controller

Bidner Bros.  
East Orange, N. J.

More details on the electronic memory machine can be secured from the Bendix Aviation Corp., South Bend, Ind.—Ed.

## Titanium Query

Sir:  
I have read about the recent success in extracting titanium from its ore and its application in industry.

I am making castings that require high tensile and compressive strength along with high resistance to abrasion. Lightness of these castings is also very desirable. In order to conduct experiments I will need a supply of titanium but I do not know who to approach. If you could answer a few outstanding questions I would be most grateful:

- (1) At what temperature does titanium melt?
- (2) Is titanium considered a ferrous or nonferrous metal?
- (3) What is the best method to melt titanium—gas, electricity or coke?

## Letters from readers

(4) Can titanium be electroplated with chrome?

(5) Can I purchase titanium sheet stock from the same source as the ingots?

G. M. BANKE

Chicago

The answers are: (1) 3050°F; (2) non-ferrous; (3) inert arc or induction; (4) not yet; (5) yes. A fully detailed article on titanium appeared in our Oct. 9, 1952 issue entitled "Titanium Our No. 1 Problem Metal."—Ed.

## Casting Aluminum

Sir:  
Should reprints of the Special Report entitled "Aluminum: Continuous Casting Gaining," appearing in the Apr. 23 issue, be available we would appreciate very much your forwarding us three copies.

R. W. SUMMEY  
Plant Manager

Noranda Copper & Brass Ltd.  
Montreal East, P. Q.

## Management Problems

Sir:  
In your Mar. 19 issue you had an article discussing a study made by the American Institute of Management called "The Improvement of Small Business Management."

It is our desire to obtain a copy of this study, and would appreciate greatly if you could inform us how we could get hold of one of these studies.

C. E. WILLIAMS

Bates Mfg. Co.  
Orange, N. J.

A copy of the study may be obtained from the American Institute of Management, 126 East 38th St., New York, N. Y.—Ed.

## 430 Stainless

Sir:  
Kindly send us ten tear sheets of the article "How To Fabricate 430 Stainless" appearing in your Apr. 23 issue.

J. A. PROUTY  
Purchasing Agent

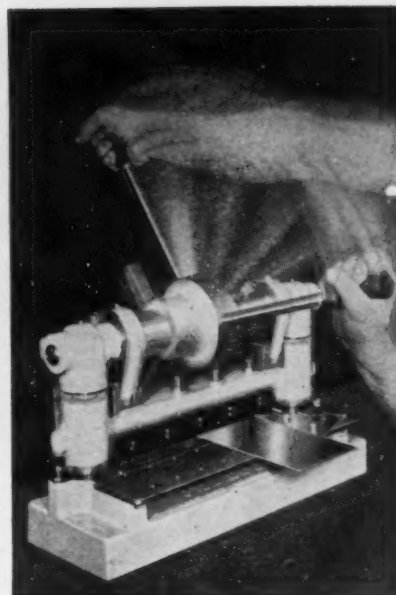
Washburn Co.  
Worcester

## Conveyorized Plant

Sir:  
Will you please send us tear sheets of the article entitled "Conveyors Carry Cold-Extruded Rockets to High Production Level," which appeared in your May 7 issue?

L. H. NEFF, JR.  
Project Engineer

Rheem Mfg. Co.  
New Orleans



## Want PRECISION SHEARING at HIGH SPEED?



Check these features and you'll want a DI-ACRO\* SHEAR



• **PRECISION**—strips less than .025" wide accurately sheared. Thousands of parts exactly duplicated.



• **CUTTING SPEED**—rivals that of power machines.



• **RATED CAPACITY**—16 gauge.



• **EASY TO OPERATE**—a woman can operate it.



• **CHOICE OF MODELS**—available in four sizes. Widths from 6 to 24 inches. Four power models also available.



• **ENGINEERING SERVICE**—always at your disposal.

• **PORTABLE**—readily moved.

• **RUGGEDLY BUILT**—backed by one year warranty.

• **DELIVERY**—immediate on most models.

• **COST**—that's good too.

\*pronounced Die-ack-ro

## LIKE MORE INFORMATION?

Send for 32-page catalog

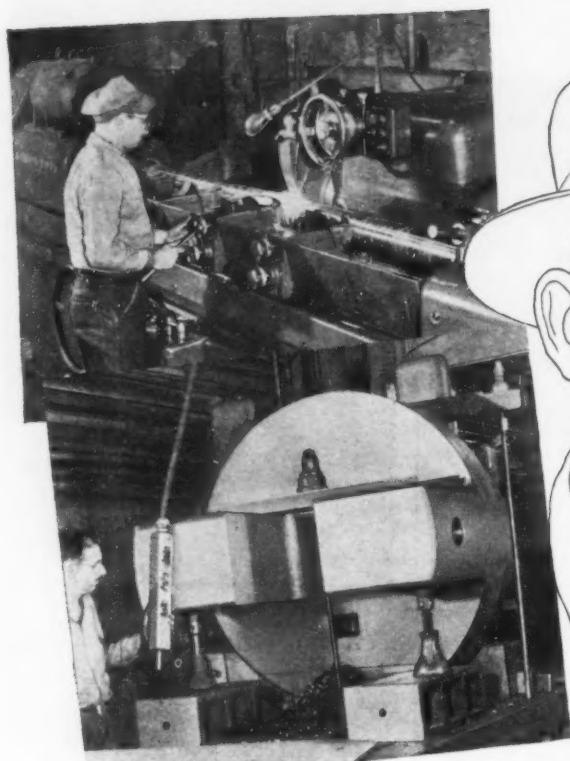
Gives full details on both hand and power operated Di-Acro Shears, Benders, Brakes, Notchers, Punch Presses, Rod Parters and Rollers. Mail your request today.

Creators of  
"DIE-LESS DUPLICATING"

**di-acro**  
PRECISION  
METALWORKING  
MACHINES

O'NEIL-IRWIN MFG. CO.  
302 8th AVE.  
LAKE CITY, MINN.





*Experienced men  
and modern tools*

**machine Finkl forgings and die blocks  
to your specifications**

In our modern machine shop the experienced eyes and hands of men like Herman, Carl, and Charley see that Finkl forgings and die blocks are machined to your requirements. We have complete control over the quality of the steel, forging and heat treating. These experienced men with modern machine tools complete the cycle thereby giving you the finest forgings and die blocks available.

Since 1879 "Forgings by Finkl" and die blocks for "Impressions that Last" have been quality products at lowest cost to you. When planning die block and forging requirements we invite you to call on our experienced men and modern facilities.



**MANUFACTURERS OF THE LARGEST FORGINGS IN THE MIDDLE WEST**

**A. Finkl & Sons Co.**

2011 SOUTHPORT AVENUE • CHICAGO 14

**ELECTRIC FURNACE STEELS • DIE BLOCKS • FORGINGS**



# Fatigue Cracks

by William M. Coffey

## Note and Initial

Charlie (ex-Fatigue Cracks) Post, now on the sales staff of your ffj and doing a good deal of traveling around the country, reports a sign in a large Buffalo department store that says, "Bargain Basement Upstairs." That's like saying to your best girl, "Go away closer."

Chuckie Boy also sent us this item that spotlights the always-mysterious inner operations of a large hotel chain:

Each hotel has a general manager and a resident manager. The general manager is responsible for the execution of the overall policies and activities and lives in the hotel. In contrast, each resident manager is responsible for the daily operations of the hotel under his supervision, but does not live in the hotel.

The requirement for promotion to Brownie Scout, 3rd Class, that formerly called for setting the table each night for mother has been changed to feeding the dog for father. Mr. N. P. Slipboom has assumed command of the Brownie National Council.

J. Martin Lawless has opened an office for the practice of law in the Central National Bank Building, Peoria, and Gita Lenz has opened a photography studio in Chicago. These Aptonyms courtesy of Mr. D. A. Redmond, Nova Scotia Technical College, who says he's got mental indigestion from just reading a 30-year backfile of THE IRON AGE "Fatigue Cracks." Any man who reads 1560 of these things at a sitting gets no sympathy from us.

"Don't Let 'Thinned Blood' Weaken You This Spring"—and from the same newspaper:

## OVERWEIGHT TWIN GIRLS

For immediate commercial promotion job, must be 10 to 35 lbs. overweight, 21 to 40 years old, rush photo, measurements.

...and from THE IRON AGE "Dates To Remember Department," Apr. 23rd:

NATIONAL WEDDING SUPPLY ASSN.  
—Annual Convention May 11-13,  
Gibson Hotel, Cincinnati—

Our apologies to the National Welding Supply Assn. 46 editors shot, 14 proofreaders hung, 3 copy boys flogged through the fleet.

Mary had a little lamp,  
She filled it with benzine  
She went to light her little lamp  
And hasn't since benzine.

Almost all of Nevada's rivers flow into desert sinks or lakes that have no outlet. Tigers are found only in Asia.

## Definitions

Florine Bender continues her GLOSSARY OF RESEARCH TERMS:

"As yet insufficient data from which to draw conclusions"—The film records were so full of hash that they couldn't be read.

"We have drawn tentative conclusions"—The film records are still full of hash, but we insisted that the computer plot some sort of curve.

"This is a report of work accomplished during the month"—We managed to get the report up to fifteen pages this month, but we don't know how.

"Results are encouraging"—The rocket burned for fifty-milli-seconds before blowing up.

"These possible solutions are being considered"—We cannot see how any of these ideas could possibly work.

"Results will be reported when they are available"—We haven't done a thing on this yet.

"Interference on the film record"—Hash.

"The results were surprising"—(1) Design Section—Because of lousy instrumentation the record bears no relation whatsoever to what actually happened.

"The results were surprising"—(2) Instrumentation—There actually were four pressure peaks and a period of negative pressure, but the design section didn't predict it so they are blaming it on faulty instrumentation.

## Puzzlers

It seems that just about everybody and his uncle came through with the correct solution to the "Town" puzzler: Albert A. Alles, Suzanne L. Ogden, J. D. Golland, Robert T. Mills, Lawrence E. Cooper, Wilma Cicero, Bill Farley, 3rd, A. H. Wendel, Mary Lanser, C. W. Sweet, Rosemarie Berenson, M. E. McKinney, Bob Games and Abel Wilensky, Mildred Hoover and Marian Oswald, George Kirtland and Kathy O'Donovan.

# METALWASH

PICKLING, PHOSPHATING,  
and DRYING MACHINES for:

cartridge cases  
rockets  
projectiles  
containers  
fuse parts

## FOR DEFENSE

Designers and manufacturers of industrial washers for the widest range of applications since 1926, METALWASH shares with American industry its all-out support of America's military might.

Successful metal surface treatment requires skillful processing techniques coupled with suitable processing equipment.

Consult your METALWASH representative—he knows the proper techniques, and he can build the proper machine to do your job.

Metalwash Finishing Engineer, published quarterly, is available on request to engineers and executives to whom cleaning and finishing are operations of interest.

Write on your company letterhead for your free copy.



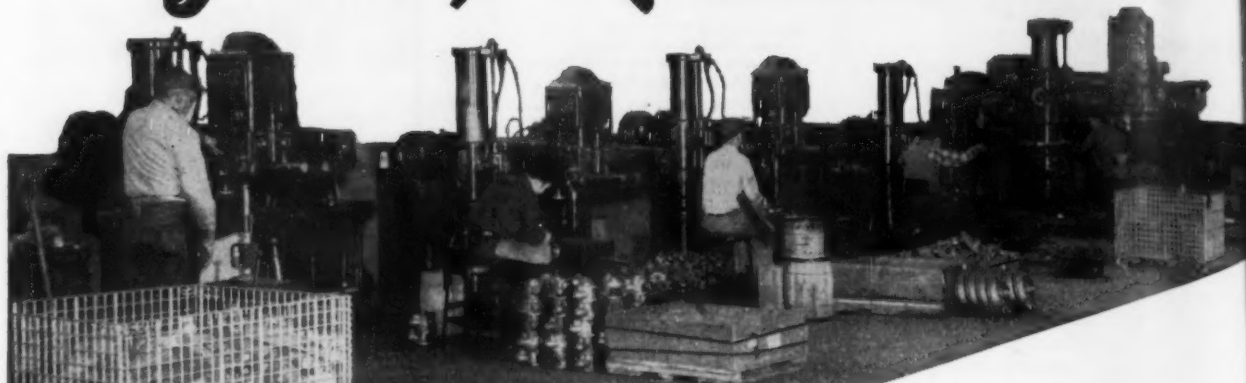
# METALWASH

MACHINERY CORPORATION

920 North Ave., Elizabeth 4, N. J.

Representatives in principal cities

*before, ~~20~~ minutes...*



*now, 6 minutes*



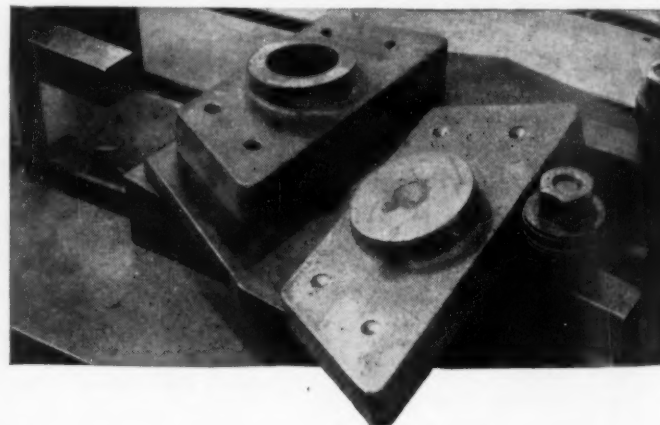
*Photos courtesy  
David Round & Son,  
Inc., Cleveland,  
Ohio.*

The outstanding performance of this Cincinnati Bickford Super Service Radial Drill brought approximately 50% cost savings at David Round & Son, Inc., manufacturers of cranes, hoists, winches and trolleys.

For example on the 4 ton steel trolley sides the time on drilling and reaming fell from 20 minutes to 6 minutes.

The right Cincinnati Bickford Super Service Radial Drill may effect parallel savings in your shop—Investigate.

*Write for Catalog R-29.*



**CINCINNATI  
BICKFORD**



RADIAL AND UPRIGHT DRILLING MACHINES

**THE CINCINNATI BICKFORD TOOL CO.**

Cincinnati 9, Ohio, U.S.A.

## Dates to Remember

### Meetings

#### MAY

**AMERICAN GEAR MANUFACTURERS ASSN.**—Annual meeting, May 31-June 4, The Homestead, Hot Springs, Va. Association headquarters are at Empire Bldg., Pittsburgh.

#### JUNE

**EDISON ELECTRIC INSTITUTE**—Annual convention, June 1-4, Atlantic City, N. J. Institute headquarters are at 420 Lexington Ave., New York.

**SOCIETY OF AUTOMOTIVE ENGINEERS, INC.**—Summer meeting, June 7-12, Ambassador & Ritz-Carlton Hotels, Atlantic City, N. J. Society headquarters are at 29 W. 39th St., New York.

#### EXPOSITIONS

**NATIONAL METAL SHOW**—Oct. 19-23, Cleveland.

**MACHINERY DEALERS' NATIONAL ASSN.**—Annual convention, June 9-11, Cleveland Hotel, Cleveland. Association headquarters are at 1346 Connecticut Ave., N. W., Wash.

**AMERICAN ELECTROPLATERS' SOCIETY**—Annual convention, June 15-18, Benjamin Franklin Hotel, Philadelphia. Society headquarters are at 445 Broad St., Newark, N. J.

**BASIC MATERIALS CONFERENCE**—Annual exposition, June 15-19, Grand Central Palace, New York. Management—Clapp & Pollak, Inc., 341 Madison Ave., New York.

**AMERICAN WELDING SOCIETY**—National spring meeting, and welding and allied industry exposition, June 16-19, Shamrock Hotel, Houston. Society headquarters are at 33 W. 39th St., New York.

**AMERICAN MANAGEMENT ASSN.**—General Management Conference, June 17-19, Statler Hotel, New York. Association headquarters are at 330 W. 42nd St., New York.

**ALLOY CASTING INSTITUTE**—Annual meeting, June 28-30, The Homestead, Hot Springs, Va. Institute headquarters are at 32 Third Ave., Mineola, New York.

**AMERICAN SOCIETY OF MECHANICAL ENGINEERS**—Semiannual meeting, June 28-July 2, Statler Hotel, Los Angeles. Society headquarters are at 29 W. 39th St., New York.

**AMERICAN SOCIETY FOR TESTING MATERIALS**—Annual meeting, June 29-July 3, Chalfonte-Haddon Hall Hotel, Atlantic City, N. J. Society headquarters are at 1916 Race St., Philadelphia.

**TRUCK TRAILER MANUFACTURERS ASSN.**—Annual summer meeting, July 23-24, Edgewater Beach Hotel, Chicago. Association headquarters are at 1024 National Press Bldg., Washington.

## ONLY \$246 BUYS A PACKAGE OF FULLY AUTOMATIC FIRE PROTECTION



Anyone who can measure volume . . . and can cut pipe . . . can install this ready-made fully automatic fire extinguishing system that requires no power source.

It includes Kidde's split-second rate-of-temperature-rise heat detector (the fastest detection known to the fire-fighting industry), Kidde's powerful Multijet nozzle and a 50-pound cylinder of fire-killing carbon dioxide. You even get a monometer tester. Pipe and fittings are optional.

Six Kidde Standard Paks are available for volumes from 800 up to 6,000 cubic feet.

All components of Kidde Standard Paks are the same as those used in Kidde custom-designed installations. The difference is that Kidde has pre-engineered the Paks for small hazards. And the savings on volume distribution are passed on to you!

You just can't beat Kidde Standard Paks for inexpensive night-and-day protection against normal flammable liquid hazards.

Remember, fire won't wait till you're ready. Better write today for full information.

# Kidde

**Walter Kidde & Company, Inc.**

549 Main St., Belleville 9, N. J.

Walter Kidde & Company of Canada, Ltd., Montreal, P. Q.





## Need Help on Difficult Threading Jobs?



### LANDIS ENGINEERS DEVISE SPECIAL EQUIPMENT & METHODS FOR "HARD-TO-THREAD" WORKPIECES

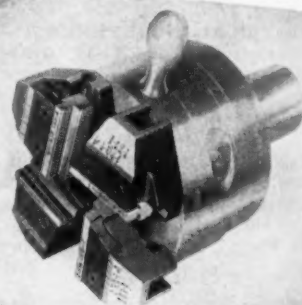
Don't let the production of an unusual thread hinder an otherwise efficient manufacturing process. Hundreds of companies are today, with LANDIS equipment, profitably generating threads formerly considered impossible or too costly for practical operation.

We offer to all manufacturers aid in solving problems in all phases of thread production. We will consult on the original design to insure that the proper thread to best serve a particular function is employed; we will advise as to the best standard equipment to produce a specific thread; we will develop special tooling for the production of an unusual or difficult thread; we will design special holding fixtures for threading workpieces that are difficult to chuck; or we will work out special methods to best fit multiple threading operations into the complete production process.

The illustrations show three examples of such Threading Problems solved by our Engineering Department. No matter what your Threading Problem—let our years of Thread Experience and Engineering Know-How work with you in its solution. Write or call LANDIS today.



A special Collapsible Tap used to thread 12" to 18" valve bodies for seat ring insertions. LANDIS Valve Seat Taps are individually engineered for their particular usage and are supplied to tap valve bodies from the 2" to the 24" size.



Double Diameter Chasers used to generate threads on reducing bushings and similar workpieces. These chasers cut threads on two different diameters simultaneously; thus, the two diameters must be identical and other limitations of different dimensions.



A Lanco Taper Cutting Head designed for producing tapered threads up to 2 1/4" in length and to unusually close tolerances. The die head can be converted to cut a reverse taper by the simple application of a reverse taper cam. Diameters from 1/2" to 2" and tapers ranging from zero to 2" per foot can be cut with this LANDIS Head.

# LANDIS Machine CO.

WAYNESBORO • PENNSYLVANIA • U.S.A.

THE WORLD'S LARGEST EXCLUSIVE MANUFACTURERS OF THREAD GENERATING EQUIPMENT



# THE IRON AGE Newsfront

**DEFENSE CONTRACTS NOT 20 PCT COMPLETED** may be cancelled by Defense Secretary Wilson. There are rumblings below the surface about his plan to narrow the base. Critics feel "all the eggs in one or two baskets" may not be the safest procedure under today's world tensions.

**QUICK CONTROL OF COSTS ON CURRENT JOBS** gives one furnace maker a better idea of how estimates fared with facts. All invoices on a given job are duplicated and the dupes kept together for control, summary of costs and comparison with job estimate. Engineers use the information in estimating future jobs.

**NEW WRINKLE IN JET ENGINE ASSEMBLY** is assembly of engines in a vertical position. Conveyors carrying assemblies raise and lower units to give maximum accessibility to all parts of the engine.

**WEIGHING HAS BEEN SPEEDED** with a direct reading hydraulic scale now available for one fork truck. Loads up to 4 tons are measured on pickup to within 0.02 pct accuracy.

**FUNCTIONS OF NPA LEFT BY JUNE 30 WILL BE ABSORBED** by Commerce Dept. Force will be cut to 450. Government wants industry's ideas and experience. Top flight business men are being sent to Commerce department heads. Machine tool people plan to have the president of a major company represent them.

**AIR FORCE HEAVY PRESS** program is being carefully studied by Defense Dept. on "operational" basis. This means some feel there may be too many presses on order. As of last week no action had been taken, but the aircraft industry is worried about continuing present slow expensive methods, providing a poor mobilization base.

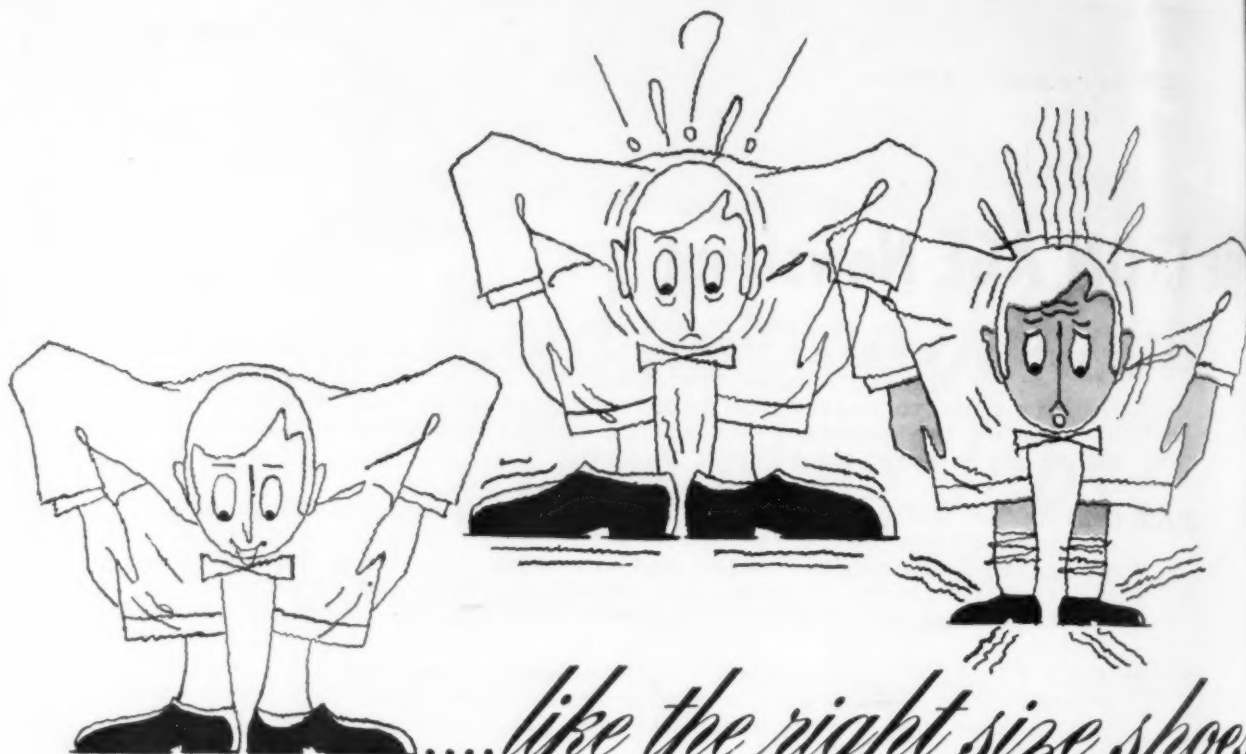
**RUSSIAN MANGANESE CONTINUES TO TRICKLE INTO THE U. S.** by way of European middlemen. Though the Russians may be unaware of eventual destination of the metal, they seem to be willing to permit limited trading for European currencies.

**A MAGNETIC CONVEYOR UNIT FOR ASSEMBLY** of test flow switches used on automatic disposal units will soon be installed by a major appliance maker. Flexibility and low maintenance will be thoroughly tested in this initial application.

**STATE HIGHWAY LOAD RESTRICTIONS HAVE FORCED** redesign of special scrap hauling trucks. New models center the loaded bins over the chassis producing ideal weight distribution.

**HYDRAULIC WEIGHT SCALE UNITS**, automatically temperature compensated from -70° to 150° F are now in use. Scales require no instrumentation and compete with the strain-gage electric weighing cells which have been on the market for some time.

**COLLEGES FEAR INDUSTRY'S SCRAMBLE FOR GRADUATES** this year will leave research projects in a bad way. Lack of students doing post-graduate and graduate research work will squeeze industry several years from now. With government retrenching on research, more responsibility falls on colleges and business.



*...like the right size shoes  
is tailored to your need*



Have you ever purchased shoes that were either too tight or too large? Are you doing the same thing with your cold rolled strip steel needs? Both can cause you trouble. Both may look fine but not give you the desired result.

CMP strip steel is made to fit. It's made to specifications designed to fit your particular fabricating operation. Your end product produced at the best cost is of course the result you require to stay in business. If cold rolled strip steel is involved in the production of your end product you may find, as have others, that your manufacturing costs are less where CMP THINSTEEL is employed. CMP THINSTEEL is cold rolled strip steel, but it is more than that. It is a specialty product produced by a specialty mill accustomed to working with unusual specifications.

In steel, as with some other products, the first cost is not always the most important. If by using a specialized product such as CMP THINSTEEL, your labor costs and your machine time can be reduced, the steel cost itself in any particular end product may not be the significant item of cost. If your fabricating operations can be made comparatively trouble-free by the use of a cold rolled strip steel product made to fit your own particular requirement, then CMP THINSTEEL has something of value to offer you. A comparative test is the means by which these values can be demonstrated. Are you interested?



**the Cold Metal Products co.**

YOUNGSTOWN 1, OHIO

New York • Chicago • Indianapolis • Detroit • St. Louis • Los Angeles • Cleveland

LOW CARBON, HIGH CARBON (Annealed or Tempered) STAINLESS AND ALLOY GRADES, ELECTRO ZINC COATED ARE AVAILABLE FROM:

THE COLD METAL PRODUCTS CO. of CALIFORNIA, 6600 McKinley Avenue, Los Angeles  
Phone: Pleasant 3-1291

THE KENILWORTH STEEL CO., 750 Boulevard, Kenilworth, New Jersey

Phones: N. Y., COurtlandt 7-2427; N. J., UNionville 2-6900

PRECISION STEEL WAREHOUSE, INC., 4425 W. Kinzie, Chicago • Phone: COlumbus 1-2700

# APPLIANCES: Boom Production Continues

**Builders expect to continue present high output through September . . . Hotpoint, International Harvester are optimistic . . . Distributor inventories low—By K. W. Bennett.**

If sales and production of household appliances decline late this year the pace may slow from a sprint to a gallop. Steel salesmen harassed to meet appliance industry needs react like men trying to water the Sahara. "Where is it all going to?" they ask.

After a special survey, one steel firm concluded appliance producers expect their present high output to continue through September.

Although appliance makers know the first half boom may not endure forever, they say that with few exceptions production is holding up. Some signs are cropping up to indicate that a downward rate of sales may materialize later but the slide may be gradual and slight. Meanwhile competition and sales campaigns are building up.



"We think there is an excellent prospect that we will finish ahead (of 1952 sales) . . . for the entire year"

—John L. McCaffrey, president, International Harvester Co.

Hotpoint President John C. Sharp told IRON AGE his sales are outstripping last year's by 90 pct and with factory, distributor, and dealer inventories substantially lower than a year ago a strong level of business for the rest of '53 seems assured.

"We do not foresee an appreciable slackening in our demand for steel in the third and fourth quarters," he said.

John L. McCaffrey, International Harvester president, stated that "sales of our refrigeration equipment will be ahead of 1952 in the first 6 months" and prospects are excellent that despite a highly competitive market the firm will exceed sales of last year.

## Clean-Cut Boom

Appliances' first quarter 1953 was a clean-cut boom, with washer, dryer, and ironer sales jumping 35.5 pct over the same period last year. Household vacuum cleaners rose almost 10 pct over the like '52 period. At least two large appliance makers announced cutbacks earlier this month but in most plants production levels did not lag. In a few cases they exceeded the first quarter.

As one appliance producer told IRON AGE, the field was "optimistically cautious." Today the industry is selling all it can produce, despite more competition.

While willing to predict good sales through the second quarter, many refrigeration men look hopefully out the window and say it had better be a torrid summer. Already registering a sales decline, dryers are said to be seasonally susceptible to the desire of the housewife to hang her wash in

the warming air. Ironer sales have also slipped but otherwise the rest of the field is strong.

In the past few weeks, a sales softness has been reported at the retail distributor level. What could happen when factory production outpaces retail sales is a jam-up of inventory. But this time major producers are not worried because distributor inventories are considered low—a good cushion for continuing high output rates.

One manufacturer reports a recent check revealed his distributor inventories are 20 pct below the level last spring. Another reports a low 1.5 units per model in stock with distributors.

In the purchase of component appliance parts a slower tempo has recently been in evidence (THE IRON AGE, May 7, p. 45). Stampings sales to appliance makers were slowing in the opening weeks of this second quarter.

Although producers are not



"Hotpoint sales are currently running about 90 pct ahead of a similar period a year ago . . . and we believe that normal business will continue throughout the year"—John C. Sharp, president, Hotpoint, Inc.



## CLAY: Tap Huge New Aluminum Source?

**Claim practical method for producing alumina from clay . . .  
Could mean U. S. independence on aluminum ore . . . Invented  
by chemistry prof . . . No impurity limit—By R. L. Hatschek.**

Independence from foreign sources of aluminum ore is one possible result of a process recently announced by Lobeth Corp., Chicago. A continuous electrolytic process, it produces alumina from low-grade clays, the company claims.

Alumina, or aluminum oxide, is commercially obtained from bauxite by chemical methods. In the production of metallic aluminum the oxide is dissolved in molten cryolite and electrolyzed. At present much of the bauxite America uses is mined in the Caribbean area and in South America.

The aluminum industry has long pointed out that the U. S. has vast potential reserves of aluminum in

clay deposits. But the high silica content of clay (30 pct or more) has been the stumbling block.

In the Lobeth method, clay is first roasted to remove moisture. Then it is put through a combination acid and electrolytic process. Some 99 to 100 pct of all reagents used are recovered, says the firm.

Preliminary estimates made by Lobeth, using an average price for electrical energy and including freight "to a degree," put the cost of 99.9 pct alumina at 15 to 20 pct less than the currently used Bayer process. Electrical requirements are said to be less than 2 kwhr per lb of alumina produced.

The firm would not divulge the means of eliminating iron and sulfuric acid. Reason for this is that patents have not yet been granted, though applications have been made in the U. S. and elsewhere.

### Impurities Don't Hurt

The process was invented by a chemistry professor and has been tested for 3 years in a leading U. S. university. A pilot plant has been operating for more than a year in Europe — and it's been run purposely on low-grade kaolin clay containing 6 to 10 pct alumina and 60 to 80 pct silica to prove that there is practically no limit to the impurities it can handle.

Lobeth states that this European pilot plant is open to inspection and it will license others to use the method. The company says that its investment to date is small—only \$60,000 to \$70,000.

## Special Report

*Continued*

worried about finished product stocks and are maintaining high production, they are launching more intensive sales campaigns. New models, giveaways, bright ads, sales courses are calculated to strengthen a consumer market that could be hit by tighter credit restrictions.

Heightened sales activity is also needed to permit companies to hold their own in today's more competitive market. It is also intended to keep open the public's demand for appliances.

The liberal sprinkling of caution in appliance making and the competitive need to keep costs down is showing up in purchasing tactics. Third quarter conversion of steel, a high cost method, is dead for appliances. While some purchasing agents will be buying premium steel in the third quarter, they are avoiding conversion.

Because of high production, raw materials remain hard to get—especially cold-rolled steel sheets and enameling iron sheets. A few component items, such as

automatic timing devices, are lodged in the scarce category.

Barring a cutback in auto output, third quarter allotments from steel mills are not expected to increase. Spot steel buying from warehouses and foreign sources will serve to bridge any deficit. Although a large inventory build-up of materials is unlikely in the third quarter any extra stocking up of steel will be of the lower priced mill product—if available.

### Keep Stocks Streamlined

Psychology of controlling inventories is that competition leaves little leeway for marking up price tags to compensate for high-priced inventories.

Even producers who will be operating from gaunt raw materials stockpiles will avoid conversion. One firm bringing a new refrigerator plant into production this fall will work on inventory it has managed to accumulate. It will not seek out conversion steel unless "there's a steel strike."

## Ups and Downs of Appliances

	Washers	Dryers	Ironers	Vacuum cleaners
Nov.	290,079	74,370	19,724	.....
Dec.	310,661	70,584	16,798	.....
Jan.	277,309	62,260	24,395	255,886
Feb.	326,604	57,136	22,586	246,007
March	345,989	49,593	16,066	329,294
April	.....	.....	.....	268,548

Source: American Home Laundry Manufacturers' Assn. and Vacuum Cleaners Manufacturers' Assn.



## STEEL: Extras Done, Bases Start Up

Practically all steel mill products have been raised in current round of price hikes . . . General base price increase coming . . . Tubular products, wire raised—By J. B. Delaney.

The current phase of steel price increases appears to have run its course with virtually all products touched in some way by the necessity of offsetting higher production costs.

It may be weeks before important steel consumers come up with an estimate of how much their costs have gone up. Individual divisions of large users are gathering figures now for analysis.

While some base prices have been increased, most of the adjustments have been in extras, a fact that complicates the job of determining the impact on steel users.

Still to come is a general increase in base prices, which is expected to follow settlement of steel union demands for higher wages.

Meanwhile, latest base price boosts have affected pipe and other tubular products and merchant wire products.

Barbed wire is up \$6 per ton. Merchant wire, annealed, rose \$6, and merchant wire, galvanized, is up \$11.

Standard T & C steam, gas, and water pipe, both black and galvanized, butt weld rose \$7.50 per ton in sizes ½ in. to 1 in., inclusive, \$3.50 per ton in 1¼ in. to 2 in., inclusive, and \$1.50 per ton in 2½ in. to 3 in. Butt weld extra strong, plain ends, is unchanged.

Seamless standard T & C, black and galvanized, was increased \$11.50 per ton on 2 in., \$9.50 on 2½ in., \$4.50 on 3 in., and \$5.50 on 3½ to 4 in. Seamless extra strong, plain ends, black and galvanized, rose \$10 per ton on 2 in., \$8 on 2½ in., \$3 on 3 in., and no change on 3½ to 4 in.

Butt weld line pipe, standard T & C is up 6¾ points in ½ to 1 in. diameters and 4¾ points in medium and 3¾ points in larger sizes. This amounts to increases of 0.5¢

per ft on small diameters and 2.9¢ on larger sizes.

Seamless line pipe, standard T & C, rose from 8¾ points on smaller diameters to 1¾ points on larger sizes, representing increases of roughly 0.33¢ per ft on small diameters to about 10¢ per ft on large sizes.

Oil country goods price revisions include—casing, no change to up \$24 per 100 ft, carload lots; tubing, off approximately \$3 to up \$3; drill pipe, up \$2 to \$18; drive pipe, up approximately \$7 to \$19.

In pressure tubing, some sizes were decreased, particularly in large diameters and heavier wall. Increases ranged from \$1 to \$2 per 100 ft carload lots cut 10 to 24 ft.

### More Extras Hiked

The steel industry seems to have just about finished up in their round of boosting extra charges. Latest changes follow.

#### Alloy Plates

Revised standard classification to exclude gages 0.0567 and thinner. Revised table of grade extras. Grade extra electric furnace steel, unchanged. New extra of \$8 for drawing quality. Other special quality extras unchanged. Size extras, up \$8 to \$19. New odd gage extra of \$3.



—ALI—  
THE IRON AGE

"Other husbands have bad days at the office, too."

Length extras, unchanged. Extras for circles, semi-circles and sketch plates, unchanged. Special cutting extras, unchanged. Treatment charges, up \$10 to \$20 except stress relieving, which is unchanged. Pickling, no change to up \$10. Special requirement extras, unchanged. Close tolerance extras, no change to up \$4. U. S. Govt. specification, no change. Quantity extras, up \$2 to \$15.

#### Alloy Strip and Sheets

Revised standard classification to exclude gages 0.0567 and thinner. Grade extras for standard steels, up \$2 to \$40. New book incorporates extras for tentative standard steels and boron steels. Special quality extras, no change to up \$10. New extra of \$9 for drawing quality. Size extras (coils) generally up \$2 to \$20. New table of length extras; new table of pickling extras. Slitting extras, up slightly. Treatment charges unchanged. Special straightness extras, up \$15 to \$55. Grinding of billets and slabs, up \$10. New table of close tolerance extras and processing extras. Quantity extras, no change to up \$2.

#### Carbon Steel Forging Ingots

Size extras, no change to up \$6. Grade extras based on carbon-manganese combination rather than individual elements, extras moderately increased. Special requirement and tests, no change to up \$2. Processing extras, unchanged.

#### Carbon Steel Skelp

Size extras, up \$3 to \$8. Quantity extras, unchanged.

#### Semi-Finished Carbon Steel, Forging Quality

Revised table of size extras, some decreased, some up \$7. Not cutting and cutting, unchanged. Quantity extras, up \$1 to \$10. Grade extras, based on carbon-manganese combination. Chemical requirements and tests, no change to up \$2. Inspection, up \$1. Processing, up \$7 to \$8.

#### Semi-Finished Carbon Steel, Rerolling Quality

Revised size standards. Size extras, off \$2 to up \$16. Cutting extras, unchanged. Quantity extras, no change to up \$10. Quality extras, up slightly. Grade extras based on carbon-manganese combination. Chemical requirements and tests, no change to up \$2. Inspection, up \$1.

## Sign Mexican Manganese Orders

Additional contracts have been signed with American and Mexican producers under a program intended to return 550,000 tons of Mexican manganese ore to the United States.

Delivery of 136,000 tons of ore from a number of small deposits in Mexico is covered in seven new contracts. Ore is to be shipped to El Paso, Texas, for processing.

Some 180,000 tons have already been contracted for under five earlier agreements. Negotiations are pending for the remaining 134,000 tons anticipated through the purchase program.

# RECREATION: Industry Hits Home Run

Some 20,000 companies sink \$163 million yearly for 24 million workers in management organized sports . . . Seek improved morale, efficiency, community relations—By R. M. Lorz.

Back in 1883 George Pullman gave the boys in his Chicago shop some baseball equipment. He threw out the first ball into the industrial recreation field—and since then organized sports for workers have moved into the big leagues.

Today some 20,000 companies are spending about \$163 million per year for 24 million workers. Employees are paying their share of this big playtime bill.

## Program Grows 16 Pct

Statistics are hard to come by in the widespread field of industrial recreation but University of Purdue researchers estimate the program has grown more than 16 pct since 1940.

Without solid management backing such progress would have been impossible but industry's incentive to send their men into sports is to achieve better morale, increased efficiency, happier community relations.

More companies are hiring full time athletic directors. They report participation is reaching high levels. It has been achieved in many instances by college trained leaders who shy away from the old varsity sports approach.

## Sports to Suit Age

Getting every worker and his family interested in company recreation has required some educating by recreation directors.

Workers who are no longer physically able to take a vicious cut at a high hard one on the baseball diamond are happily bidding diamonds in weekly bridge sessions at Reynolds Metals Co. in Louisville, Ky.

Walter C. Kolish, manager of the Louisville firm's recreation program, says inter-company bridge tournaments are currently running at an enthusiastic pitch.

For the more active "young old timers" Ford Motor Co. has start-

ed a blooper softball league in Dearborn, Mich., which gives dad a chance to show the youngsters how it's done. Ford also fights juvenile delinquency by sponsoring day camps for boys and girls. When dad goes to work in the morning he drops off the kids at a Ford

## How Workers Rank Sports



camp where they get a full day of healthy outdoor activity.

Men of retirement age aren't being ignored. In many firms the oldsters are given lifetime memberships in employee associations so they can continue to pursue hobbies and mingle with fellow workers long after retirement.

Executives may be impressed by the happy results but they still want to know more about costs. Dr. Jackson M. Anderson, in charge of research for the National Industrial Recreation Assn., says: "We've found that in many instances workers can and will finance the lion's share of a recreational program themselves."

## Fattening the Kitty

Financing in most cases is handled through non-profit athletic associations to which members pay yearly dues. Fees are modest and usually range from 50¢ to \$3. Proceeds from square dances and other community activities help.

More ambitious programs in larger companies are often financed by a pro rated "take" from vending machines. Company contributions from candy and soft drink machines are usually tied to participation charts.

Management's backing doesn't stop with nickles and dimes from the vending machine. In most cases employee dues are either matched or exceeded by contributions from permanent company recreation funds.

## What Experts Advise

Experienced recreational directors have some down-to-earth advice for firms who want to expand their programs. They advise you to: (1) Make sure your program is organized or it will get out of hand and your efforts will be wasted. (2) Insist on active cooperation from the worker. (3) Don't be too quick to veto an activity because there aren't too many people interested—let the per capita cost of that activity be your guide. (4) Do keep accurate and detailed records of everything that seems pertinent.

# OIL: Williston Boom Calms Down

**Black gold fever yields to conservative development in Williston Basin . . . Exploration, drilling on increase . . . Expansion whets area's appetite for oil well steel—By K. W. Bennett.**

Discovery of the "largest producing oil well in the Williston Basin" last week by Shell Oil Co. typifies present operations there.

The petroleum industry did a doubletake, then jumped in with both feet when the basin's first gushers came in back in 1951. Oil country equipment manufacturers weren't far behind in the rush to cash in on the black gold strike.

## Vanishing Wildcats

Today the boom town atmosphere is wearing away. Williston still looks good, but more conservatively so. Payoff on Shell's Cabin Creek Unit came only after careful research, exploratory drilling. The wildcat entrepreneur with a mortgaged drilling rig is the basin's vanishing citizen.

The basin stretches across North Dakota into Montana, Wyoming, Saskatchewan, Manitoba, and South Dakota. Of the 75 million acres in the oil-prospective areas, 85 pct are already under lease.

Williston, N. D., heart of the basin, has been the jumping-off place for most productive drilling to date, with greatest concentration of wells in McKenzie, Williams, and Mountrail Counties. Actual drilling is done at Nisson Anticline about 50 miles east of Williston near Tioga.

## Whet Steel Appetite

With the average well running to 8500 ft in depth and consuming only 111 tons of steel, tube producers are not yet in a fever of anticipation. But the basin's steel appetite is sharpening, will be boosted by several major projects.

Signal Oil plans a \$10 million natural gas plant at Tioga, will break natural gas now being burned at the well into natural gasoline, butane, propane, and commercial gas. Standard Oil has begun construction of a refinery at Mandan,

N. D., to handle 30,000 bbl of crude per day. Cost with its pipelines will be about \$40 million.

Connecting the wells at swelling little Tioga with the new Mandan refinery will be a 170-mile, 12 and 16 in. pipeline to be completed in 1954 by Service Pipe Line Co. Another "products" pipeline will connect the Mandan refinery with Moorehead, Minn., where an older line links Whiting, Ind., to Minneapolis and St. Paul distribution centers.

Already sweetening the mix, North West Refining Co. of St. Paul Park, Minn., is putting the finishing touches on a \$4.5 million expansion program that will raise their refining capacity from 8000 to 30,000 bbl per day. This will be in operation in Fall, '53.

With new wells coming in at an average rate of 13 wells per month early this year, steel tonnages going

into producing wells alone amounted to only 4440 tons. But the new wells had to be connected to the local pipeline that pours Nisson anticline oil into the Tioga railhead. Hence each new well brings with it a demand for small additional tonnages of pipeline, tanks, valves and flaring equipment.

While only 72 wells had been completed in the Williston area by December of last year, the number had risen to 134 in the four-county area by the end of April, 1953. Predictions for the area run as high as 265 producers by December, with a yield of 200 bbl per day per well.

## Who Owns It

Amerada Petroleum and Hunt Oil have been the major producers to date, but Standard will move into the area for test drilling this year. Lion Oil and Bishop Oil have already announced commencement of drilling on their holdings.

Bishop has 157,685 acres under lease, Lion 512,685 acres in North Dakota alone, and Standard 4.5 million acres.

Standard has estimated that oil companies will spend about \$100

## Oil Well Steel Use in Williston Basin

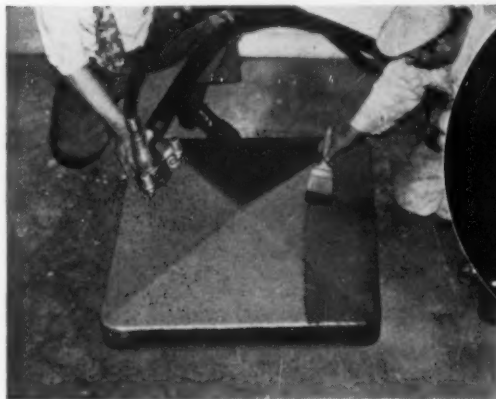




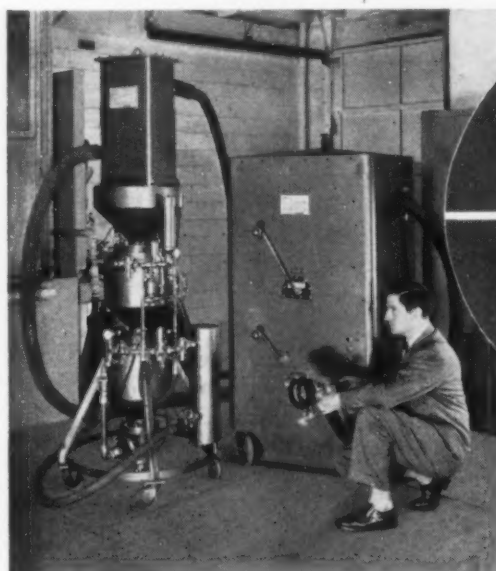
# BLAST CLEANING

## WITHOUT DUST

VACU-BLAST scours the surface, eats the dust and reclaims the abrasive — all at once!

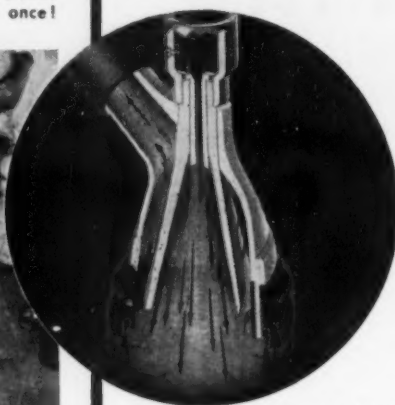


Right in the midst of your working shop, Vacu-Blast removes rust, paint and scale from metal, masonry and wood with a thoroughness and efficiency that only abrasive blasting provides. Surfaces are perfectly prepared for welding, painting or process requirements, yet there's no dust or scattered abrasive to interfere with other operations.

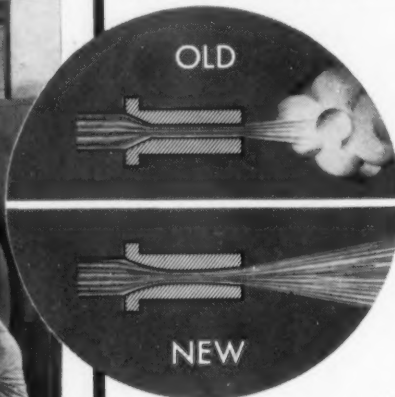


This is Vacu-Blast's working team — the blast gun — the combination generator/reclaimer, and the dust collector. All are compact, portable and easy to move around.

## OR GRIT



The abrasive, dust and debris are confined within the blast gun — they are picked up by Vacu-Blast's unique, patented vacuum return. The blasted surface is left clean and dustless. Your shop is protected from the nuisance of scattered dust and grit. Valuable abrasive is reused numerous times.



Newest Vacu-Blast improvement is the flared, high efficiency nozzle that does up to 25% more work per hour than previous nozzles. Developed through extensive research, the throat design of this new nozzle eliminates inefficient shock waves, resulting in full power flow of abrasive. This new nozzle is now provided on all Vacu-Blast equipment, and has been made available to all present users.

# VACU-BLAST CO. INC.

BOX 885-H • BELMONT • CALIFORNIA

Please send specific detail information applying to the

business.

Firm \_\_\_\_\_

Address \_\_\_\_\_

Signed \_\_\_\_\_

Write for  
free booklet  
to Dept. H-8138

## Fuel

million in the 1953 search for oil in the area. Expenditures hit only about \$50 million per year for the past 2 years. Optimists predict a total of 15 companies doing exploratory testing, drilling in '53.

### Supply Firms Move In

Oil well supply companies, operating out of Williston and Minot, are already well represented. In a spanking new commercial area extending 4 miles north of Williston can be found such staid names as Jones & Laughlin, Mid-Continent, U. S. Steel's Oil Well Supply Div., Waukesha Motors, and others.

Dealers in Williston and Minot carry full lines of cranes, concrete mixers, materials handling equipment, power plants, pumps, shovels, diggers, tractors of all sizes and makes—all the auxiliary equipment needed by any full fledged oil field. At least one is reported planning new and larger quarters.

Business levels for equipment suppliers are below last year, and natives feel too many suppliers arrived too soon. Some heavy equipment is hard to get, but spare parts, bearings and rust preventatives are going great guns.

### Gradual Expansion

Pro-Williston forces like to point out that Williston is not a boom town and this is not an oil rush. They foresee a 10 to 15 year period of gradual expansion, finally hitting an output of anywhere from 100,000 to 300,000 bbl per day.

This would put Williston Basin production on a par with the Rocky Mountain region, but below West Texas, the Gulf area, Oklahoma-Kansas, and California.

Most tubular goods shipped into the Williston area so far have come by rail from eastern mills. A solitary shipment found its way up from the Lone Star State, but in most cases the South has been producing more oil country equipment and fixtures than tube and casing.

With new tube mills now rolling at Chicago, Pueblo, and Houston, steel from those areas will start moving in soon. Tube is still very tight. Users take it where they can get it, but freight rates are not yet a major factor.

# FURNACES: Business Hot Through '53

Industrial furnace makers agree that high levels of business will carry through '53 . . . Economist says depression's inevitable . . . Future of aircraft output—By Tom Campbell.

Like all other businessmen, industrial furnace makers want to know when and if a depression is coming, what happens when defense work levels off, and what would a cease-fire in Korea mean for business?

But these answers are not easily available and, like all other businessmen, members of the Industrial Furnace Manufacturers Assn., meeting in Hot Springs, Va., last week had to be content with reasoned estimates.

## Gaging Present Business

But they could more accurately gauge the present trend of business. They agreed that business today is healthy despite a slipping off in the past few months. Production volume and shipments will remain good for the rest of 1953. No one contradicted that the solid level of business was in part indebted to defense.

Because defense work ranks important, members listened well to professional opinions on what could happen in Korea and in the cold war with the Reds.

Economist Dr. Neil Carothers, Lehigh University, straightened everyone in his seat by saying depression will come again as it has always come — and government cannot stop it. Harbingers can be found in high installment buying that mortgages the worker's future purchasing power, falling farm prices, and other economic similarities to previous depression cycles, he said.

## Depression Imminent?

No one can tell when it will come or how long it will last, but the tone of Dr. Carothers' speech indicated that it may not be far off.

More optimistic about the present, he said production and consumption are in fair balance today. War's end in Korea will have little

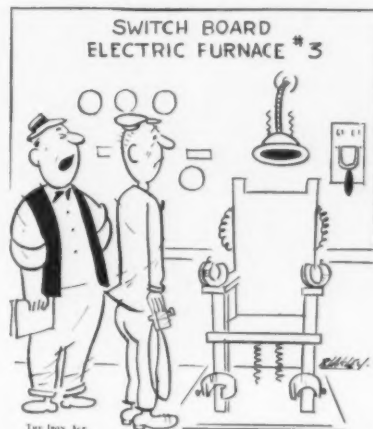
effect on business because larger international questions such as the cold war remain to be settled. Five years and \$1 billion will be needed to rebuild Korea.

Qualified to speak because he served as an adviser in Korea, Dr. Carothers backed Gen. Van Fleet in condemning the deliberate reluctance to end the war and drive to the Yalu River. He said negotiators should obtain hard assurances that the country will be unified and kept safe from future Chinese and Russian aggression.

Gen. Kern D. Metzger, of Air Materials Command, Wright Patterson Air Force Base, said the aircraft industry's capacity to produce a 143-wing air arm will be reached in June 1954. Then, requirements will be on a maintenance, overhaul and replacement basis.

## Broad Output Base

Although many firms will be crowded out of production when the major air program is completed, there will be an emphasis on keeping the production base as broad as possible. Firms will switch from two shifts to one shift while private firms will be used



"Just never let a heat go through the bottom of a furnace and you won't have to worry about what's that for?"

for maintenance and overhaul of aircraft. Non-aircraft plants will supply airframes, engines, turbines and parts.

## Keep Machines Handy

Only as a last resort will surplus tools and equipment be sent to government storage depots. They will be kept near the site of future use or adjacent to private plants. Working for the aircraft program are 185,000 government machines and other equipment of which 10,000 are held in reserve and another 10,000 are on order.

Of 1026 firms making planes and parts, 54 pct have less than ten government-owned machines and 369 have less than five. Continuing to buy on the broadest possible basis consistent with economy and critical need, the Air Force may strive for two sources of supply and perhaps three.

## Lest We Forget

When the air project is completed, some prime contractors may find themselves demoted to subcontractors but an effort will be made to retain non-aeronautical manufacturers.

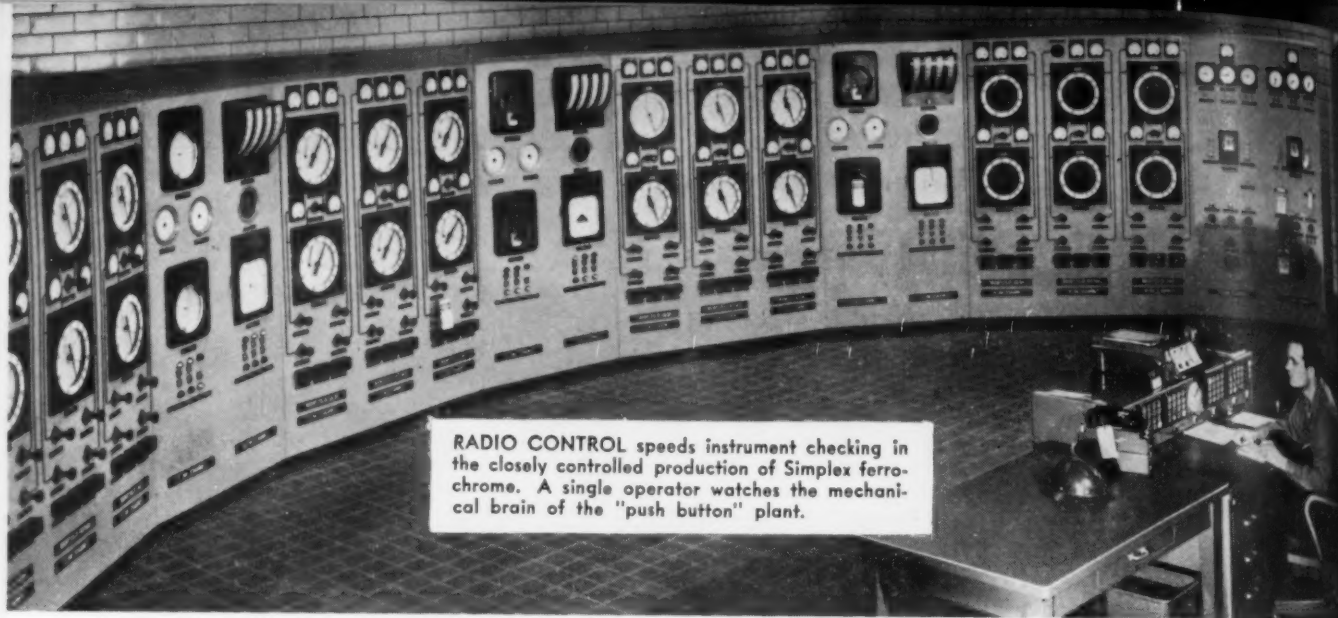
We can attain a record rate of warplane output—unless we permit productive capacity to deteriorate as we have done before. If this happens, the painful cycle of buildup must be cranked up again to meet a future crisis.

Listening to Gen. Metzger gave you the idea that America is in far better condition to keep abreast in the warplane race than is generally believed.

## Sold More But Made Less in '52

Sales by American manufacturers rose 5 pct last year, but profits both before and after taxes dropped off 7 and 15 pct. These figures were used by John Hill, president, Air Reduction Co., Inc., in a talk at a convention of the National Assn. of Purchasing Agents in Los Angeles this week, to show that increased sales are not always a sure route to greater profits.

Mr. Hill stated that wise spending is just as vital as good sales.



RADIO CONTROL speeds instrument checking in the closely controlled production of Simplex ferrochrome. A single operator watches the mechanical brain of the "push button" plant.

## FERROALLOYS: 'World's Largest Plant'

**Electromet strips security wraps from modern new plant with new processes, products . . . Will help America with strategic alloys . . . Produces Simplex ferrochrome—By W. V. Packard.**

Production of steelmaking alloys, sometimes described as metallurgy's black art, has become an exact science.

Last week Electro Metallurgical Co. briefly lifted security wraps on its "world's largest alloys plant" near Marietta, Ohio. Eyepoppers included:

(1) A new "Simplex" process for making ferrochrome with carbon content as low as 0.01 pct. This pellet-shaped, sintered chromium alloy permits steelmakers to produce austenitic stainless steel with as little as 1 pct nickel.

(2) A new electrolytic process for producing tonnage quantities of chrome in practically pure form. This will be the first time chrome of such purity has been produced in commercial quantities.

(3) A new plant which will produce several thousand tons of practically pure manganese per year, also by an electrolytic process. This will be a big advantage to steelmakers producing the new stainless steels of 16 pct chrome, 16 pct manganese, and 1 pct nickel.

(4) Greatly expanded production facilities for making standard ferroalloys—to keep pace with steelmaking growth.

Development of these high purity ferroalloys is particularly timely in view of increasing mili-

tary and civilian demands for stainless and alloy steels—especially for high temperature applications.

With the market outlook for both nickel and columbium dim (at least in the foreseeable future) Electromet's huge investment may help keep the pressure for alloys within reasonable bounds.

When completed in spring of 1954 the new Marietta plant will represent an investment of well over \$100 million. It will increase Electromet's alloy capacity by



CONTINUOUS, submerged arc furnaces are used to melt ore and other materials. The three story high furnaces operate continuously, with ferroalloys drawn off periodically. This is main bay of one of three furnace buildings.

about 40 pct over 1950 levels. This doesn't include expansion of other company plants. Altogether alloy capacity of the Union Carbon & Carbide Corp. division will be triple what it was in prewar 1940.

New plant will employ about 2400 people, will process about 1500 tons of ores daily for a yield of almost 500 tons of ferroalloys.

Perhaps the most interesting and significant part of the Marietta expansion is the modern, "push button" plant for producing Simplex ferrochrome—the new chromium alloy for making stainless steel.

In this ultra modern plant production control is centered in a huge bank of instrument panels. A lone operator verifies instrument readings with on the spot walkie-talkie reports, relays instructions from production control.

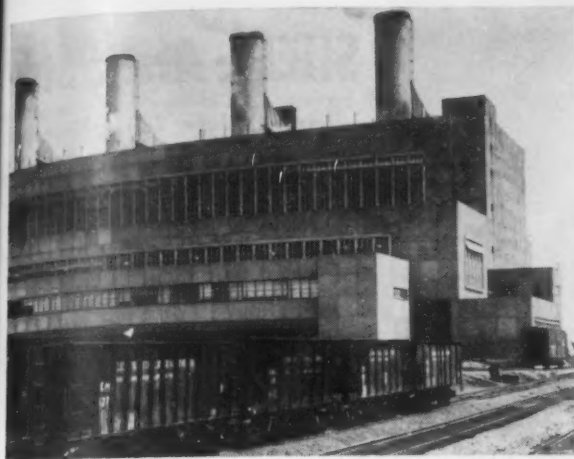
All three melt shops will be equipped with continuous submerged-arc, 3-phase electric furnaces. Twelve such huge furnaces are now operating.

Raw materials are weighed and mixed in the mix house, conveyed to melt shop, and charged through chutes. Melting is continuous, with highest temperatures about 6000° F. Ferroalloys are periodically tapped from a somewhat cooler point at base of furnace.

To produce the low carbon (as low as 0.01 pct) ferrochrome, high carbon ferrochrome and silica from the melt shop are pulverized in large Allis Chalmers ball mills. Water and special flux binder are



## Expansion

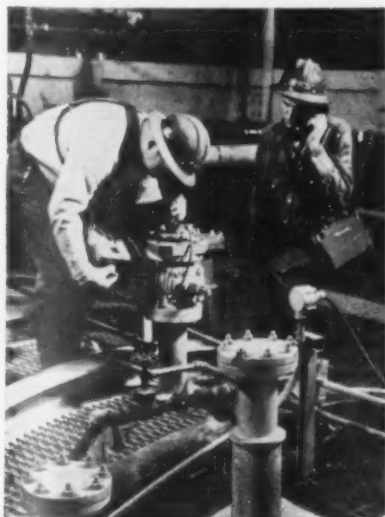


POWER comes from one of biggest private industrial power plants in country—200,000 kw, or more than the needs of city larger than Philadelphia. Like other buildings, construction is of concrete slab—two thin layers of precast concrete sandwiching fiberglass insulation. Resulting appearance is more like an institutional building than a hot metal plant.

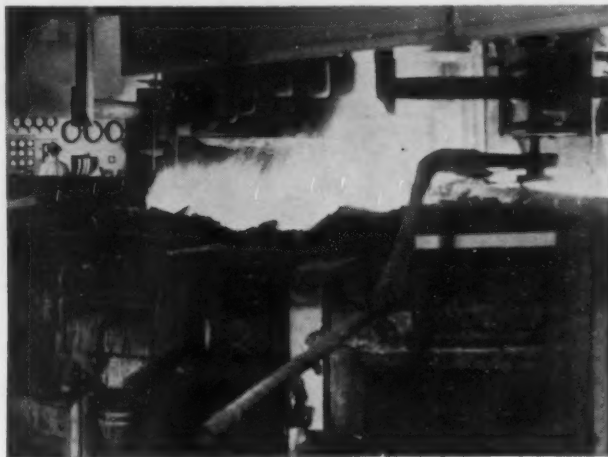
added after the crushed alloys have been thoroughly mixed. Material then moves by conveyor onto a curved wheel pelletizer that looks like a giant waffle iron. Resulting pellets are firmed by baking at low temperature, then loaded onto an oversized flat car.

The loaded flat car, carrying 20 to 100 tons of pellets then is rolled into mammoth high vacuum, high temperature furnaces for decarbonization. Pellets are baked from 80 to 100 hr at very high temperature. Water is circulated over the exterior of the immense furnaces to prevent buckling.

The 20 buildings are constructed of white concrete slabs and have



WALKIE-TALKIE radio is used to report temperature reading from top of biggest high vacuum, high temperature furnace ever built. Simplex ferrochrome pellets are baked for 80 to 100 hr.



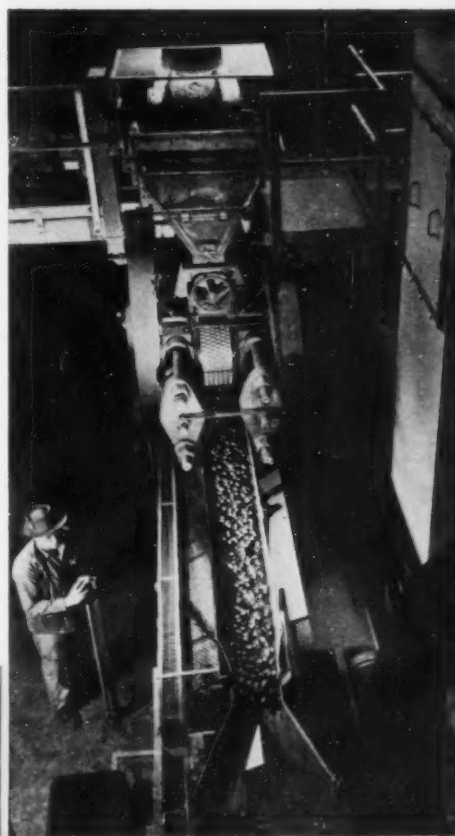
SUBMERGED ARC electric furnace is charged from above and tapped from below. Furnace operates continuously at temperature of 6000°F. Electrodes are also fed continuously. Workman is pushing charge up against electrode.

more the appearance of institutional buildings than of a hot metal plant. Panels are made from two layers of precast concrete sandwiching fiberglass insulation. Construction is both economical and rapid, with panels lifted by crane and bolted into place.

Power comes from one of the biggest private industrial plants in the U. S., rated at 200,000 kw.

WAFLE IRON like machine converts powdered ferrochrome into pellets after flux binder has been added. After about 90 hr of baking pellets become Simplex, low carbon ferrochrome.

READY for shipment to steelmaking plant, carbon content of ferrochrome pellets has been lowered, perhaps to as little as one part in ten thousand (0.01 pct.) Pellets are shipped in cans or container cars to prevent absorption of moisture.



CONTINUOUSLY OPERATING AT 1000°F



Specialists in Barrel  
Finishing Operations



Electrolux likes  
Wyandotte  
**BURNEK 22**  
—so will you!

*BURNEK 22 being used at Electro-  
lux plant in Old Greenwich, Conn.*

Mr. Milton E. Hodges, plant engineer, Electrolux Corporation, manufacturers of vacuum cleaners, says: "We have found Wyandotte BURNEK 22 to be very satisfactory; in fact, superior to other products previously used in our barrel finishing department."

Electrolux is another of many famous companies that use Wyandotte

industrial products for specialized jobs. No matter what *your* metal cleaning or processing problems, you will find a specialized Wyandotte quality product to speed production, cut costs. Call in your Wyandotte metal cleaning expert today. *Wyandotte Chemicals Corporation, Wyandotte, Michigan. Also Los Angeles 12, California.*



**Wyandotte CHEMICALS**

Helpful Service representatives in 138 cities in the United States and Canada

Largest manufacturer of specialized cleaning products for business and industry

## —Expansion—

### SHEET: Armco Strip

Ultra-modern \$40 million hot  
strip mill debuts at Ashland  
... Capacity: 150,000 tons.

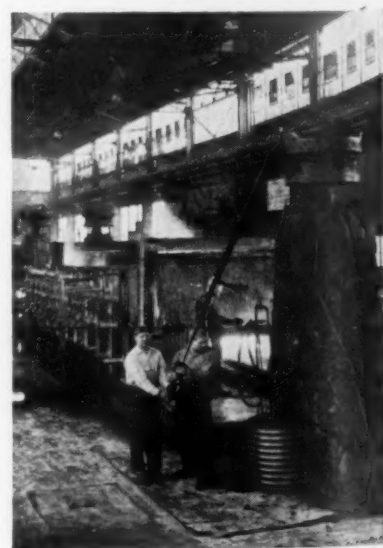
Wednesday of last week was an important day in the history of the steel industry. For it was then that Armco Steel Corp. unwrapped a huge new 80-in. hot strip mill at its Ashland, Ky., works. The event was especially significant because the ultra-modern, \$40 million mill is operating within a stone's throw of the first successful continuous sheet mill ever built.

It was just 30 years ago that American Rolling Mill Co. (now Armco) put most of its financial eggs in one basket and backed the late John Tytus' idea for rolling steel sheets like paper. The result was the granddaddy of the modern continuous strip mill.

#### Nourished Consumer Industries

History will record the continuous rolling mill as one of the significant developments in the steel industry. It permitted high-speed production of steel sheets, resulting in much lower prices. And the sheets were of better quality.

Rapid production of good quality sheets at lower cost was reflected in



BEFORE: First continuous strip mill was installed at Ashland Works of American Rolling Mill Co., now Armco Steel Corp., just 30 years ago, is still in operation.

Strip

ion hot  
Ashland  
0 tons.

was an  
y of the  
en that  
pped a  
ll at its  
ent was  
se the  
l is op-  
row of  
s sheet

o that  
(now  
ancial  
nd the  
olling  
result  
modern

ries  
uous  
rnifi-  
in-  
peed  
ting  
the

lity  
d in

## Mill Bows In

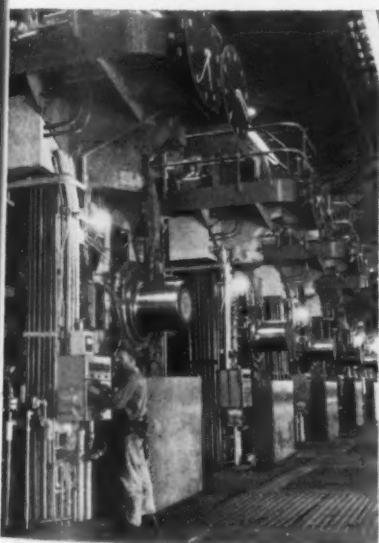
ensational development of automo-  
bile, appliance, and other sheet con-  
suming industries. Sheet produc-  
tion to this day is one of the fastest  
growing and most profitable seg-  
ments of the tonnage steel industry.

### Granddaddy as Standby

Though Armco spokesmen de-  
scribe the old mill as "now getting  
very tired" they pridefully point  
out that it still rolls some of the  
finest shell steel. The government  
has requested that the old mill be  
held in standby for 5 years before  
being broken up for scrap.

The new hot strip mill is housed  
in a building almost half a mile  
long, and has a capacity of 150,000  
net tons of finished sheet steel a  
month. Present openhearth produc-  
tion at Ashland can furnish only  
about half the steel the new mill  
can roll. The company hopes to  
eventually boost steelmaking there.

In addition to the \$40 million hot  
strip mill, expansion is continuing  
on facilities for processing light  
gauge steel. These include a con-  
tinuous pickling line (for removing  
oxide formed during rolling), a  
cold reversing mill (to roll strips  
of cold steel into thinner gages),  
and light and heavy gage Zincgrip  
lines (for continuous galvanizing).  
Estimated cost is \$7 million.



AFTER: Armco's new 80-in. hot strip mill,  
unveiled at Ashland, Ky., last week. It  
eventually will send the old mill on the op-  
posite page back to the furnaces as scrap.

**P** LANT  
ENGINEER  
INSTALLS  
**MICRO**  
SWITCH to PROVIDE  
AUTOMATIC WEIGHING  
AND HANDLING OF MATERIALS

● Lamina for motors is forced out of a guide and drops on the slide below. When the predetermined weight operates the MICRO switch, the air cylinder is actuated and pushes the lamina to the next assembly position.

This ingenious device for automatically weighing and handling materials is but one of innumerable uses plant superintendents, electricians and maintenance men are finding for these rugged, dependable MICRO switches.

Complete stocks of MICRO switches are available from distributors in 142 key cities for your convenience in selecting the switches which can make your present equipment safer, more automatic and more productive.

Are you receiving MICRO TIPS? If not, and you would like to receive up-to-date information on what other plant engineers have done with MICRO switches, send your name and address now and we will see that you get this idea-packed publication regularly.

**MICRO** A DIVISION OF  
MINNEAPOLIS-HONEYWELL REGULATOR COMPANY  
MAKERS OF PRECISION SWITCHES  
FREEPORT, ILLINOIS





## TINY TUBES: Specialty Has Many Uses

**Firm makes miniature tubing for instruments, electronics . . . Output runs 7000 to 8000 lb per month . . . Expansion and diversification are current goals—By R. L. Hatschek.**

A pound of aluminum ingot costs 20½¢. But it's worth about \$450 after Uniform Tubes has made 0.010-in. OD, 0.001-in. wall tubing out of it. The price isn't high when you consider that 1 lb of it stretches 6.2 miles.

Main objective of the firm is not tonnage—it's quality. Brass, copper and aluminum tubing with diameters up to ⅝ in. are the main products which Uniform will redraw to suit customers' specifications. The firm also produces metal shielded wire and will supply small tubing of nickel, steel and other metals.

Specialty of the house is aluminum pointer tubing for use in delicate instruments. The 0.010-in.

tubing above is a sample but the most common size for this purpose is 0.019-in. OD with a wall thickness of 0.0015 in.

The electronics industry is a growing consumer of small diameter and thin-walled tubes. It is used for such purposes as coil forms and guide tubes in the production of transistors. Putting the 0.003-in. gold wire into a transistor is a ticklish job and Uniform supplies 0.020-in. OD, 0.006-in. ID tubes for this job.

### Deliver by Parcel Post

Other customers include many government and private research laboratories, model airplane manufacturers and even one firm which produces leg bands for birds from small tubing.

Uniform is a small business employing 20 people on two shifts. Production runs about 7000 to 8000 lb per month. Raw material is standard size tubing.

The plant's operations are relatively simple. Tubing is pointed, drawn through a die, along with a mandrel in most cases, expanded

in cross-rolls or swaging machines to remove the mandrel. This cycle is repeated until the desired OD and ID are reached. Then the tubing is straightened, cut to length, boxed and shipped. Practically all shipments go parcel post.

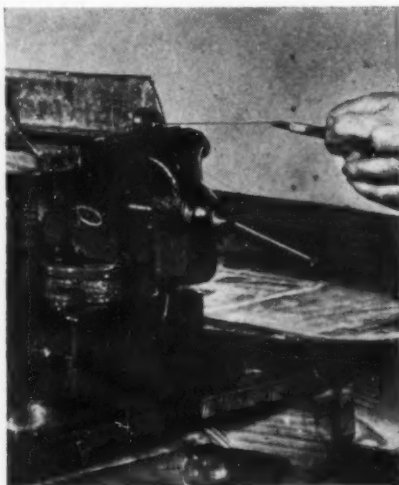
### Use Diamond Dies

Diamond dies are used for all tubing under 0.048 in. and for some up to 0.065 in. All other dies are tungsten carbide. Larger mandrels are steel rod, while music wire is employed for small ones.

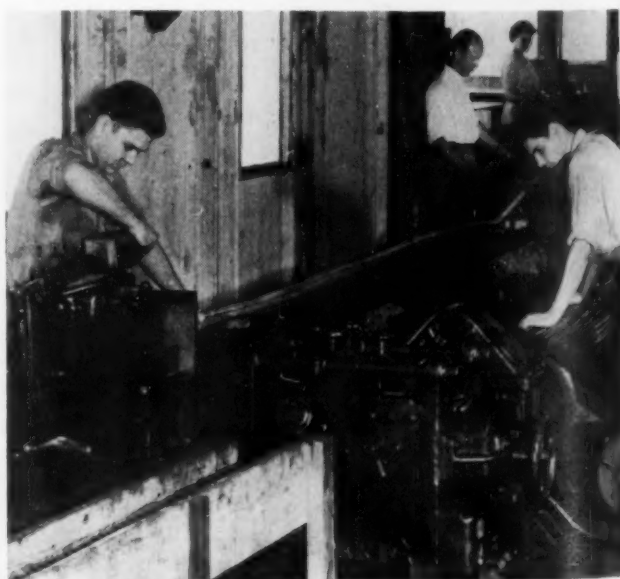
Cutting to length is done by rolling the tubing under a razor blade and snapping it off. This method results in a clean burr-free end with no obstructions, but it is rather slow and tedious. A mechanical cutter is being developed to handle "large" quantities.

Less than 2 years ago Uniform moved from cramped quarters in Philadelphia to its present location in nearby Collegeville. Capacity was increased 150 pct. This is expected to be doubled in the next year.

New facilities are now being erected. They'll include additional draw benches, a machine shop and further fabricating facilities. The firm will then be in a position to do special forming, bending, drilling, threading, tapping, tumbling and assembly work.



**HAND DRAWING**  
a sub-miniature aluminum tube through a diamond die is shown in the upper photo. Workers using small swaging machines to slightly expand the tubes for removal of the music wire mandrel. Tubes will next be straightened and cut to length. At right is an earlier operation—one of the first redraws.



# SPENDING: Defense Orders Stay High

**Cuts in Defense Dept. budget to have little effect on military spending in next 12 months . . . Carryover funds to bolster buying . . . Aim at lower backlogs—By A. K. Rannels.**

Mr. Taxpayer can look forward to saving about \$5.2 billion on the revised Defense Dept. budget. But it won't make much difference in military and defense spending over the next 12 months, or even the next 24. Carryover funds will fat-ten up the reduced appropriation for the new fiscal year.

What is indicated, however, is a pronounced change in the spending pattern. Aim is to effect economy without disturbing the present mobilization base or weakening current painfully built-up military strength.

Defense Secretary Wilson is aiming at getting the whole mobilization program off the present "paper schedule" and onto a "realistic" footing.

## What Will Happen

Best guess now is that after the shouting dies and the dust settles, the Wilson military-defense program is likely to shake down to something like this:

A \$40 billion spending rate this year and next . . . Smaller defense order backlogs under a first-things-first policy . . . Firming up of the plane and air power program . . . Slower rate of jet engine orders . . . Less military construction . . . Elimination of most high-cost producers . . . Modest start on the Vance plan for stockpiling production facilities.

Should new spending be trimmed as now proposed, most noticeable effect will probably be a squeezing out of the water in the present large backlogs of military and defense commitments.

It would be helpful and nice for industry to be able to have a 3-year production schedule based firmly on military order backlogs, Mr. Wilson concedes.

But he also believes it is not practical. He has a maxim that you can't do something in one-half the time by merely providing twice as much money or placing twice as many orders.

This procedure has been virtually essential in getting mobilization going. But now that it is rolling, Secretary Wilson fears its continuation would tend to "get the place cluttered up" with easy-to-get items at the expense of hard-to-get goods.

## Fat Not Muscle

Congress has approached the revised budget proposals with caution, particularly with an eye to its effect on building up air power. Mr. Wilson has had to spend a great deal of time in spelling out why the reduction is fat-trimming, not muscle-cutting.

On a dollars-and-cents basis, the Defense Dept. will start the new fiscal year on July 1 with at

## What Wilson Plans

"The Dept. of Defense hopes to keep expenditures (actual) for fiscal year 1954 down to \$43.2 billion and hopes to reduce expenditures for fiscal year 1955 to approximately \$40 billion in the event the Korean war is over.

"While anticipated expenditure for fiscal year 1954 will be approximately the same as estimated expenditures for the current fiscal year, it is planned to increase the amounts for procurement of major items of military equipment and hard goods, and decrease expenditures for overhead, personnel, and procurement of soft goods and supplies."—*Defense Secretary C. E. Wilson, before House Appropriations Committee.*

least \$63 billion in carryover funds. It is asking \$36.1 billion in new funds to bring the total available to \$99.1 billion.

About \$43 billion is scheduled for running expenses and deliveries. Remainder would cover future commitments.

## Who Gets What

Present plan is to divide up the \$99 billion among the services on about this basis:

**Air Force, \$40 billion; Army, \$30.1 billion; Navy and Marine Corps, \$26.5 billion; other activities, including a start on the tool stockpile, \$2.5 billion.**

Air Force gets the smallest share of the new money, but actually will have 52 pct more money to spend next year than Navy and 41 pct more than Army. Army is getting the biggest share of new money because of Korea.

Secretary Wilson has promised Congress there will be no cutting or undue delay in the 143-wing Air Force goal. But his plan calls for concentrating on first getting 120 fully equipped wings rather than 143 partially activated wings.

## Jets Last Longer

This means that emphasis will be on getting modern planes into quantity production, and perfecting them to the point where they are "right" for intended use. This likely means a reduced order backlog.

Also, orders for jet engines are likely to be placed at a somewhat slower rate. This doesn't mean reduced requirements or less motors in the long run. Actually, jet engines are being built better, last longer, than had been expected.

Army spending is likely to continue at about the current rate—as long as action continues in Korea. Present combat strength will be kept at 20 divisions, 18 regimental combat teams, 117 anti-aircraft battalions.

Navy and Marine Corps have about reached desired operating strength, will remain at present levels. This means more than 400

active warships, 16 carrier groups, and undisclosed submarine elements for Navy.

Marine Corps has three divisions, three air wings. Naval and Marine air strength combined totals more than 15,000 planes.

Point is, that in addition to making up for combat attrition, the proposed budget includes plans for continued modernization as well as "additions" to mobilization stocks of critical "hard items" for the three services.

### Is It Necessary?

Orders are out to go slow on future military construction activity. Recognized standard will be: "Is this construction necessary?"

Not much is said about it, but provision has been made for retaining in the budget the full \$500 million recommended in the Vance Report for getting the machine tool and equipment stockpile started.

Secretary Wilson fully supports the plan. But chances are that only about one-half or around \$250 million will be actually committed during the next 12 months.

The head of the Defense Dept. now plans to give each proposed contract a thorough going-over before giving his approval.

### Shift to Monthly Nickel Quotas

Beginning July 1—with the start of the Defense Materials System—allocations of nickel will be made on a monthly basis, instead of quarterly.

National Production Authority, in amending portions of M-80, said the change-over from CMP to DMS calls for greater flexibility.

This does not mean an increased supply of nickel, NPA warns. The monthly system offers a "simpler" means of spreading the supply, the agency says.

Applications for allocations under the change must be filed by the first day of the month preceeding the month in which the metal is to be melted or processed.

Allocations of cobalt, molybdenum, columbium, tantalum and so on will not be affected by the

change. Allocations of these alloying materials will continue on quarterly schedules.

### Contracts Reported Last Week

Including description, quantity, dollar values, contractor and address. Italics indicate small business representatives.

Primer, percussion, 9000, \$288,000, Calumet & Hecla, Inc., Detroit.

Rocket assays, 72000, \$1,428,870, General Motors Corp., Lansing, Mich., *A. E. Goosen*.

Metal parts for booster, 3880, \$356,960, Grand Rapids Hardware Co., Grand Rapids.

Automotive spare parts, 2704850, \$8,037,-824, General Motors Corp., East Pontiac, Mich., *J. P. McManus*.

Fuze, rocket, dummy, 10000, \$960,000, Monarch Governor Co., Detroit.

Parts for 90 MM gun, 25344, \$58,058, Bearing Appliance Co., Philadelphia.

Transfer assy, 3400, \$383,006, New Process Gear Corp., Syracuse.

Radiator assy, 4800, \$155,232, Blackstone Corp., Jamestown, N. Y.

Primer, percussion, 15000, \$401,550, General Motors Corp., Rochester, N. Y., *H. E. Rodgers*.

Tube, burster, 422450, \$62,522, General Motors Corp., Rochester, N. Y., *H. E. Rodgers*.

Motor generator sets, 115 ea, \$523,250, Bogue Electric Mfg. Corp., Paterson, N. J.

Revolvers, cal. .38, 11048, \$353,204, Smith & Wesson, Inc., Springfield, Mass.

Engine control system, 1, \$80,929, D. Ballauf Mfg. Co., Washington.

Regulus loading & handling dollies, 17, \$277,180, Henry Spen & Co., Brooklyn.

Machine, milling, 2 ea, \$52,687, White Star Machinery & Supply Co., Wichita, Kan.

Lapping machines, 40, \$89,074, P. R. Hoffman Co., Carlisle, Pa.

Replenishment of spare parts, \$75,194, General Motors, Indianapolis, *H. S. Bowden*.

Shell, smoke WP, 140000, \$221,467, The Oliver Corp., Springfield, Ohio.

Fan, exhaust, paint room, 900, \$199,377, M & E Mfg. Co., Indianapolis.

Heads, M. T., 190000, \$189,050, Correct Swiss Parts, Inc., Mineola, N. Y.

Turn & bank indicators, 444, \$65,641, Bendix Aviation Corp., Teterboro, N. J.

Fuze, 215000, \$1,109,400, U. S. Time Corp., Waterbury, Conn.

Kit, repair wheel cylinder, 150000, \$122,-325, Wagner Electric Corp., St. Louis, Mo.

20 MM freed mechanism, job, \$703,071, Sunbeam Corp., Chicago.

Case, cartridge, 75 MM rifle, 300000 ea, \$616,416, Norris-Thermador Corp., Vernon, Calif.

Tractor, crawler type, 78 ea, \$1,714,912, International Harvester Co., Melrose Park, Ill.

Spare parts, var, \$127,766, Worthington Corp., Chicago.

Tube, 8620, \$874,930, Haudrille-Hershey Corp., Buffalo, Vincent *E. Lasker*.

Spare parts, var, \$52,787, The Ross Carrier Co., Benton Harbor, Mich.

Spare parts, var, \$84,106, Orr & Sem-bower, Inc., Reading, Pa.

Spare parts, var, \$57,131, The Prosperity Co., Inc., Syracuse, N. Y.

Clip, cartridge, 20904292, \$706,146, International Silver Co., Meriden, Conn.

Kit, tool & insert, 1 unit (657) ea, \$73,-682, Hell-Coil Corp., Danbury, Conn.

Parts for gun, machine cal. .50, 5 items, \$3,794,572, Colt's Mfg. Co., Hartford, Conn.

Shell, HE, M49A2, MPTS, 400000 ea, \$500,000, Lehigh Foundries, Inc., Easton, Pa.

Cartridge, ignition, for mortar, 60 MM, 1813000 ea, \$64,905, Bayshore Industries, Inc., Elkton, Md.

Guns, 20 MM M3, 2122 ea, \$1,156,490, Crown Cork & Seal Co., Baltimore.

Spare parts for gun 20 MMM3, 18 sets, \$475,335, Crown Cork & Seal co., Baltimore.

Carburetors, jets, washers, var, \$152,000, Bendix Aviation Corp., South Bend, Ind., *G. I. Lyman*.

Refrigeration equip, 18, \$84,817, Refrigeration Engineers Corp., New York.

## Business:

Buyers see good times, stable prices through third quarter

Purchasing men, keeping an alert eye on industrial activity, predict that June may be top production month of 1953. National Assn. of Purchasing Agents reports activity high—but with a few slight soft spots showing in May.

Production is high but buyers note a downward trend for new orders. A June rush is expected as factories prepare for July vacations which are expected to be more prevalent and longer in many cases.

### Cut Delivery Time

Without the steel extra charge increase the price trend for May would have been down, NAPA finds. Material stocks are dipping and pressure continues to bring them even lower. Most manufacturers' inventories are in the 30 to 60-day range. Lead time appears to be shortening.

The report indicates that payrolls have stopped increasing and that overtime is being cut back in general. While some areas continue critically short of skilled labor, others are undergoing an improvement in this respect. NAPA finds productivity is increasing, primarily as a result of plant modernization programs. Personnel people are closely watching steel wage negotiations.

### Forecast Stable Prices

As for price trends, 57 pct of purchasing men surveyed forecast no radical changes in either direction. A gradual decline is expected by 35 pct and the remaining 8 pct see an upward tendency. Those expecting rising prices base the feeling on the possibility of a steel wage increase this summer.

On production for the rest of the year, 53 pct estimate business will be good through the third quarter. They hedge very little on this score and are taking vacation shutdowns into consideration. Another 31 pct are bullish through the end of the year and 16 pct expect a gradual decline in the second half.



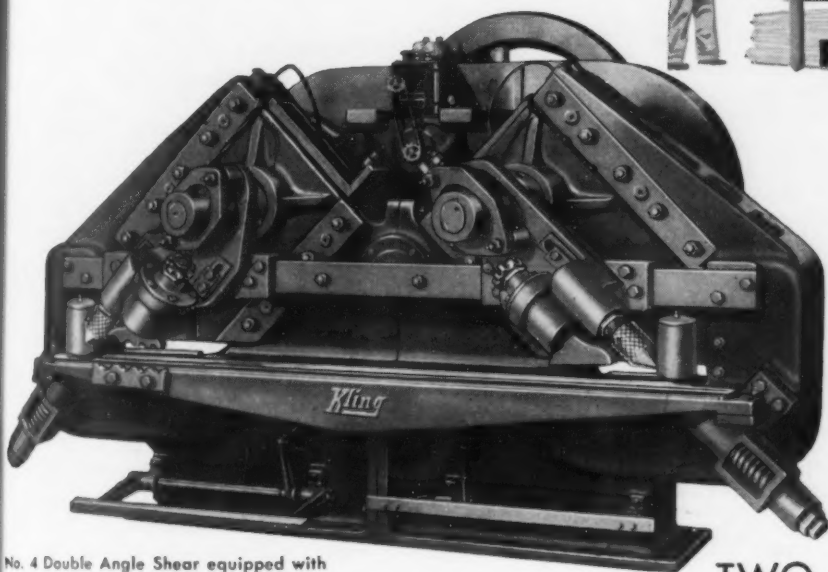
# It's the **BUSIEST** machine in the shop!

...gives more cuts per day on **FLATS**



**ANGLES**

**ROUNDS**



**Kling**  
**double**  
**angle**  
**shears**

TWO shears in ONE machine!

No. 4 Double Angle Shear equipped with Automatic Lubrication System, Gear Guards and Automatic Hold-downs.

If you're using obsolete, slow-poke methods of shearing, the Kling Double Angle Shear can help you save time and money. This modern compact machine is designed for high speed, high production shearing on both long and short run jobs. Many metal fabricating plants and steel warehouses have found the Kling Shear to be the workhorse of the shop. For instance, one machine will shear round bars and bar angles on the left side while the right side can be used for structural angles and flat bars. The machine is built with the speed and power to handle the bulk of your shearing requirements. For shops with considerable mitre shearing

work, Kling Double Angle Shears can be mounted on a turntable to facilitate handling. Automatic hold downs and one-shot lubrication can be furnished when desired. Sizes to handle angles up to 8" x 8" x 1½".

## WANT TO CUT SHEARING COSTS?

Find out how this high-production machine, available in four sizes, can give you more cuts, cleaner cuts on your shearing operations. Write for more information and latest bulletin. Kling Bros. Engineering Works, 1322 North Kostner Avenue, Chicago 51, Illinois.

SEND FOR NEW BULLETIN 2345.

**Kling**

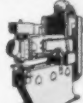
...an investment in speed!



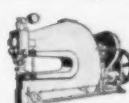
Combination Shear Punch & Copers



Friction Saws



Rotary Shears



Punches

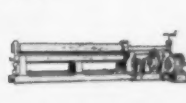


Plate Bending Rolls

May 28, 1953

# Industrial Briefs

**Inspection Tour . . . MYSTIC IRON WORKS**, a subsidiary of Eastern Gas & Fuel Associates, had approximately 350 New England foundrymen and leaders in the metalworking industry as its guests recently. The group was taken on flat cars for an inspection tour of the company's blast furnace and coke plant.

**Elected . . . CONTROLLERS INSTITUTE OF AMERICA** has elected Reginald Campbell, secretary and comptroller for the Falconbridge Nickel Mines Ltd., Toronto, Ont., to membership in the institute.

**Honored . . . A. M. Buxton**, assistant general sales manager, THE COOPER-BESSEMER CORP., Mt. Vernon, Ohio, was given the Gas Appliance Manufacturer's Assn. meritorious service award recently.

**Construction Underway . . . AMERICAN CAR & FOUNDRY CO.** has started construction at the St. Charles, Mo., plant on 112 streamlined passenger cars for the Union Pacific and eight for the Chicago and North Western.

**Texas Rep . . . COLUMBIA TOOL STEEL CO.**, Chicago Heights, Ill., has appointed the A. J. Rod Co., Inc., its sales representative in the Texas territory.

**Completed . . . BEDFORD FOUNDRY & MACHINE CO.** has completed an addition to the overhead crane fabrication and erection floor of its plant in Bedford, Ind.

**Manufacturing Center . . . THE HYDRAULIC PRESS MFG. CO.**, Mt. Gilead, Ohio, has announced a new manufacturing center abroad, which will produce the full line of H-P-M equipment for distribution in Western Europe and other territories.

**Alabama Bound . . . WORTHINGTON CORP.**, Harrison, N. J., plans the construction of a new plant at Decatur, Ala., for the manufacture of air-conditioning equipment.

**Renews Sponsorship . . . AMERICAN MACHINE & FOUNDRY CO.**, New York, was the first sponsor to renew its association with "Omnibus."

The series, which will return in October, will be on from 5:00 to 6:30 P.M., Eastern Standard Time, Sundays during the 1953-54 season.

**To Start . . . INTERNATIONAL MINERALS & CHEMICAL CORP.**, Chicago, reports that its new hydrochloric-acid-magnesium-oxide plant is nearing completion at Carlsbad, New Mexico, and will begin operation this month.

**Merger . . . FEDERAL ELECTRIC PRODUCTS CO.**, Newark, N. J., reported its merger with Pacific Electric Mfg. Corp., San Francisco.

**Named . . . John C. Hoover**, Burke Steel Co., Inc., has been elected president of the PURCHASING AGENTS ASSN. of Rochester, N. Y.

**Available . . . AIR REDUCTION SALES CO.**, New York, has reported the availability of a new, improved E6010 electrode, the Aircro 78E, for welding mild steel in all positions.

**Sales Increased . . . BINGHAM-HERBRAND CORP.**, Toledo, reports net sales for the 6 months ended Mar. 31 totaled \$9,299,987, an increase of 26 pct over last year.

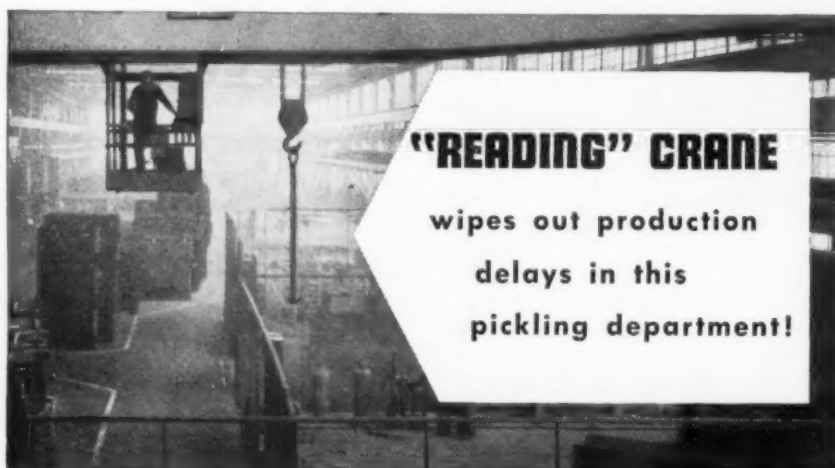
**Acquired . . . PARKER AIRCRAFT CO.**, Los Angeles, subsidiary of The Parker Appliance Co., has acquired Proof Industries' complete line of aircraft hydraulic directional control valves along with Proof's order backlog on these products amounting to approximately \$1 million.

**Medium Tanks . . . PATTON 48 MEDIUM TANKS**, now in production at Chrysler Tank Plant, Newark, Del., General Motor's Fisher Body Div., Grand Blanc, Mich., and Ford's Livonia, Mich., plant, soon will be sent to tactical units in this country and overseas. Special features of the Patton 48 are its high-velocity 90-mm gun, a precision rangefinder, low silhouette, and power steering.

**Dividend Declared . . . THE CLEVELAND-CLIFFS IRON CO.**, declared its regular dividend of \$1.125 per share on the preferred stock.

**Celebrating . . . REGAL WARE, INC.**, Kewaskum, Wis., recently celebrated the successful production of its millionth 105MM steel cartridge case.

UNIVERSITY OF MICHIGAN LIBRARIES



**"READING" CRANE**  
wipes out production  
delays in this  
pickling department!

A prominent producer of automobile frames found production slipping. Figuring it was due to inefficient load handling equipment in his pickling room, he called in a "Reading" handling engineer. After installing a 10-ton "Reading" overhead traveling crane he found his problem solved. Now the operator simply pushes a button. The motorized crane, traveling 400 feet per minute, does all the work.

Employee morale is higher because fatigue is eliminated. And the extra efficiency obtained resulted in improved production.

Further information on "Reading" Electric Cranes will enable you to judge their advantages for your own load handling operations. Get our latest 16-page bulletin, "The Why and How of Faster Production. Write to:



READING CRANE & HOIST CORP. • 2101 ADAMS STREET, READING, PA.

Chain Hoists  
Electric Hoists  
Overhead  
Traveling  
Cranes

**READING CRANES**

Specify



BUMPER FACE-BAR

for

## High Strength and Impact Resistance with Excellent Cold-Formability

N-A-X HIGH-TENSILE, having 50% greater strength than mild carbon steel, permits the use of thinner sections—resulting in lighter weight of products. It is a low-alloy steel—possessing much greater resistance to corrosion than mild carbon steel, with either painted or unpainted surfaces. Combined with this characteristic, it has high fatigue and toughness values at normal and sub-zero temperatures and the abrasion resistance of a medium high carbon steel—resulting in longer life of products.

N-A-X HIGH-TENSILE, with its higher physical properties, can be readily formed into the most difficult stamped shapes, and its response to welding, by any method, is excellent. Due to its inherently fine grain and higher hardness, it can be ground and polished to a high degree of lustre at lower cost than can mild carbon steel.

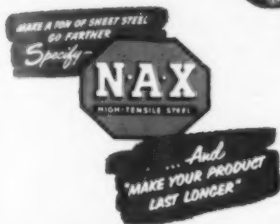
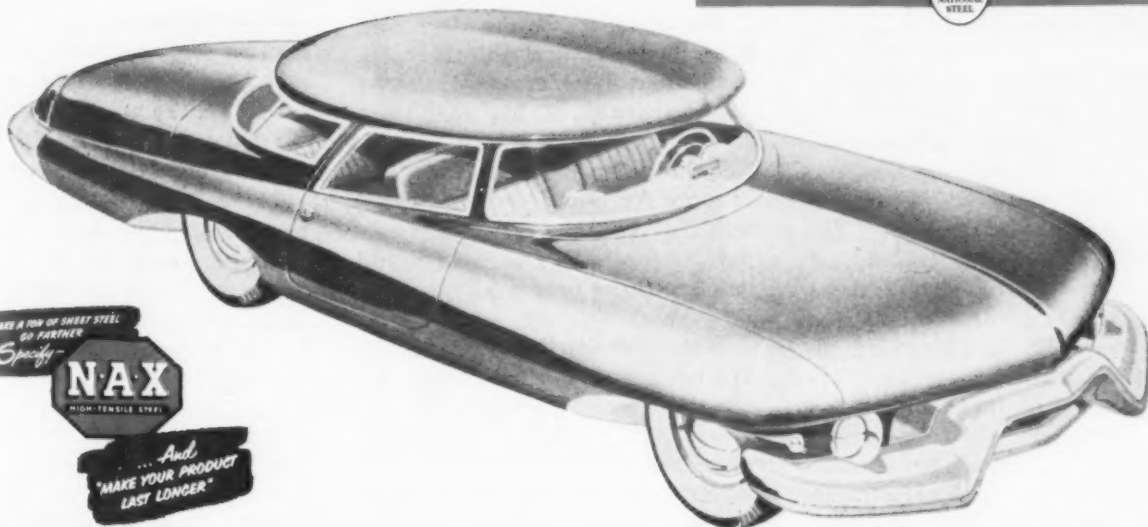
Your product can be made lighter in weight . . . to last longer . . . and in some cases be manufactured more economically, when made of N-A-X HIGH-TENSILE steel.

### GREAT LAKES STEEL CORPORATION

N-A-X Alloy Division

Ecorse, Detroit 29, Mich.

NATIONAL STEEL CORPORATION



KEEP YOUR SCRAP MOVING TO YOUR DEALER

May 28, 1953



# The Automotive Assembly Line

## Reuther Sires Another Living Document

**GM and UAW come to terms on revision of 5-year labor pact . . . UAW won almost everything it asked for . . . GM supplier strikes abruptly end, others continue—By R. D. Raddant.**

A 12-hour session late last Thursday night tied it all up. Next morning Harry W. Anderson, General Motors vice-president in charge of personnel staff, and Walter P. Reuther, president of United Automobile Workers, were ready for the announcement.

Sitting amiably at the head of a long conference table the friendly enemies of countless labor negotiations said that GM and the UAW had reached agreement on revision of the formula of the 5-year labor pact.

**Victory for Reuther . . .** Actually, the UAW got almost everything it asked for. Settlement was a complete victory for Mr. Reuther's "living document" thesis. But there was little if any bitterness from the GM side.

The corporation's willingness to reopen talks midway through the pact was an indication that the company itself felt that some inequities had arisen from circumstances that were not foreseen when the historic document was signed 3 years ago.

**What They Got . . .** These are the terms of the revised formula:

Annual improvement factor was raised from 4¢ to 5¢ per hr.

Floor of the cost-of-living allowance was raised 19¢. This means that downward adjustments in case of sliding living costs will be limited to 5¢ from the present level. The union had asked 21¢.

Union and company agreed to a transition from old to new BLS price index. Agreement further provides that upward adjustments will come at the rate of 1¢ for each 0.6 points of the index, but

it will take a downward fluctuation of 0.68 to drop pay 1¢.

Skilled labor will receive an increase of 10¢ per hr. This will restore the historic differential between skilled and unskilled rates that tended to be narrowed by flat increases in the past.

**Coincidental? . . .** Whether by coincidence or not, strikes in supplier divisions of GM came to an

### Automotive Production

(U. S. and Canada Combined)

WEEK ENDING	CARS	TRUCKS
May 23, 1953 . . .	138,241*	23,869*
May 16, 1953 . . .	150,360	26,945
May 24, 1953 . . .	101,520	28,425
May 17, 1953 . . .	99,101	28,688

\*Estimated Source: Ward's Reports

end as contract settlement approached. Elsewhere in the industry, however, labor disputes among suppliers were paralyzing production at Ford, Chrysler, Nash, Willys, Studebaker, and Kaiser-Frazer.

Mr. Reuther said the UAW will meet immediately with other auto companies. The fiery labor leader left no doubt of his confidence that the others will fall in line. But the union has something else in store for them. It seemed certain that pension revisions, not a part of the GM agreement, would be part of the program.

**Wants Pension Pioneers . . .** "We are not going to discontinue our efforts to gain increases in pensions," he declared. "GM has pioneered in reopening the contracts. We feel that other corporations should pioneer on pensions."

What is the future of long term contracts?

"Our basic attitude will be conditioned by the auto industry's acceptance of the contract as a living document," he said. Under this theory, the UAW believes that both parties are "obligated to work out differences that could not be anticipated at the signing of the contract."

**Stabilizing Relations . . .** Harlow H. Curtice, GM president, said it was the desire of both parties to achieve a fair readjustment.

"This agreement has had a stabilizing influence in labor-management relations and we expect the understanding reached today will contribute even more to stabilizing relations among our employees for the remaining 2 years of the contract," he stated.

New contract will cover about 350,000 GM employees including 40,000 skilled workers who will receive the extra 10¢ boost.

**Strange Bedfellows . . .** While the labor pot boiled, a statement by UAW President Walter P. Reuther last week brought about some of the strangest reactions from the strangest quarters.

"I don't very often agree with him, but he may have something there." This statement was standard conversation among businessmen in Detroit when the unpredictable Mr. Reuther suddenly called for the auto industry to cut current production rates to avoid mass layoffs later in the year.

There is no doubt that the auto production race has raised considerable skepticism in other segments of industry and business. Many fear a fast shift from boom to bust. So apparently does Mr. Reuther.

**Can They Do It? . . .** But whatever its long term results may be, how can the UAW, an automotive supplier, or even a stockholder tell the industry to slow down? The

race is based on competitive reasons. The stronger companies deny that it is a race to get in and get out, but it may amount to that with some of the industry.

And suppose the industry did sit down and decide collectively that it would be better to take it easy. How would this sit with the anti-trust laws regardless of what prompted the action?

Mr. Reuther's statement was part of his guaranteed annual wage strategy, but it is doubtful if even he anticipated the reaction it received.

**Automakers Aid Steel . . .** Long awaited plans of McLouth Steel Corp. to expand its Detroit steel-making facilities through substantial loans of automotive capital came to light last week.

If stockholders approve financing plans, General Motors will buy \$25 million of participating preferred stock at \$50 par value. American Metal Products Co. will come in for \$2 million of the same stock.

McLouth's expansion plans and the method of raising the more than \$100 million necessary for facilities to become an integrated mill had been the subject of wide rumors since the company's application for an RFC loan was withdrawn a year ago.

Remainder of the \$105 million will be financed by \$30 million from Metropolitan Life Insurance Co.; \$26 million from Prudential Insurance Co.; \$4 million from each of two other insurance companies and the remaining \$14 million from a group of banks.

**Double Capacity . . .** Plans call for a blast furnace, ore docks, ingot making and steel rolling facilities at the Trenton, Mich., plant. Expansion will double the present capacity of about 579,700 tons, integrating the new exclusively electric facilities. Plans do not call for openhearth furnaces, but hot metal will go to a bessemer converter and then to the electric furnaces.

McLouth expects the new capac-

ity will readily be absorbed by auto plants in Detroit.

**"Exceeds Production" . . .** "It is well known that the consumption far exceeds the production of steel in this area," said Donald B. McLouth, president. "Over a year of engineering study has confirmed confidence of the board of directors.

The McLouth program will bring GM's total financial participation in expansion of steel capacity to \$93 million. One \$40 million package has been extended to Republic Steel Corp. and \$28 million to Jones and Laughlin Steel Co.

## Used Cars:

**Stocks high, sales lower . . . but dealers stay cheerful.**

Eyes of the auto industry are turning to the used car market, never really strong this year in spite of record production of new models.

National Used Car Dealers Assn. now reports that a state-by-state poll of dealers shows that

used car sales have dropped 5 pct from 1952 in the first quarter.

However, the survey shows that inventories are no higher than a year ago, except on the West Coast where used car stocks are more than 20 pct higher than last year.

An *Automotive News* monthly survey reports that dealers' stocks of new cars are at a post-war high, with the average dealer carrying 12.8 cars.

This is not necessarily a bad sign, because dealers believe that a wider selection for the customer is a sales stimulant. If competition is tough, as it certainly is, a wide stock is an advantage, not a disadvantage—within limits.

The used car survey showed varying trends in different geographic sections. New England and the South showed the greatest volume in sales decline, but in the Midwest sales increases were the rule.

Used car dealers say that even where volume is kept up, profits are lower by as much as 30 pct because of lower markups, increased costs, tighter financing.

## THE BULL OF THE WOODS

By J. R. Williams



# the one source

for "Desegatized"  
high speed tool steels

LATROBE... the one source that furnishes "DESEGATIZED" high speed tool steels - uniform in quality - free of carbide segregation - whether you buy on mill order or from warehouse stocks... the mill where Ultrasonic Reflectoscope inspection is a part of standard manufacturing procedure to assure the internal soundness of the tool steel you buy... the only producer to offer disc inspection service to all tool steel users as your guarantee of the top quality you get on every order.

The fine moly-type high speed tool steel brands indicated here are available to meet your requirements for quality materials. Tougher than the comparable tungsten types at equivalent hardness, they have found wide-spread acceptance among the users of high speed steels.

CONTACT YOUR LOCAL LATROBE REPRESENTATIVE

## LATROBE STEEL COMPANY

Latrobe, Pennsylvania

Sole Producers of "DESEGATIZED" Steels

BRANCH OFFICES AND WAREHOUSES IN PRINCIPAL CITIES

ELECTRITE  
**6-6-M2**

ELECTRITE  
**HV-6**

ELECTRITE  
**TATMO**

ELECTRITE  
**TNW**

ELECTRITE  
**CO-6**



## Excess Profits Tax—Bad but Profitable

Unless Congress can cut deeper into budget taxes may not be cut . . . Ike insists on keeping taxes . . . Political acid test . . . Ask renewal of PAD controls—By G. H. Baker.

Behind the currently unpromising outlook for tax reduction is the hope that Congress can cut the budget even more between now and June 31. If this is possible, then the tax cuts slated during the next fiscal year may go through on schedule.

But if only about \$6 billion is the most Congress can trim from the Truman budget estimate of \$78.6 billion for fiscal '54, then most of today's tax rates will almost surely stay on the books for another year.

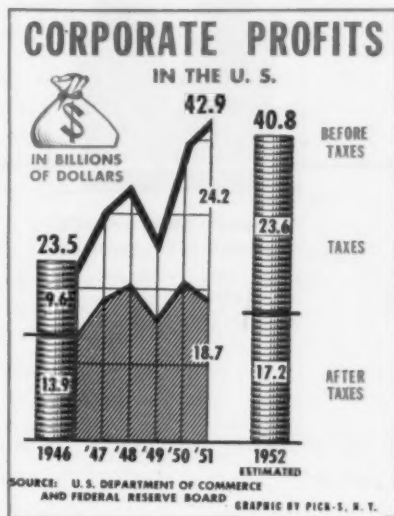
**Bad but Profitable . . .** Scheduled expiration of the excess-profits tax on June 30 is no longer the "sure thing" Congress once believed it to be, particularly since President Eisenhower's earnest message to the Capitol asking that reductions be postponed. Despite near-unanimous agreement in Washington that EPT is a bad tax, the Administration dislikes even more the prospect of losing the \$2 billion in revenue it yields each year.

As Secretary of Commerce Sinclair Weeks puts it: "Business, aware of global dangers, will back President Eisenhower in advancing his sound money-tax program, on which economic stability and national defense depend."

"In this age of continued peril, we must be realistic. We must be solvent or we cannot be secure. We must be secure or we cannot survive."

**Acid Test for Ike . . .** Yet extension of EPT will not be won easily at the Capitol. Chairman Daniel A. Reed, R., N. Y., of the House tax-writing Ways and Means Committee continues dead-set against any continuation. And a majority

of committee members believe just as strongly that taxpayers should not be deprived of promised reductions. Actually, the President is facing a major test of his political skill in trying to win Congress over to postponing the scheduled cuts.



In his favor is the staunch support of his Cabinet and party leaders at the Capitol, but running against him is the tide of opposition from rank-and-file congressmen of both parties. But the excess-profits tax, while it is a hefty money-maker, does not affect a large segment of the nation's industries. U. S. Chamber of Commerce estimates that less than one business in a hundred is affected.

**More of a Howl . . .** Real protests will arise over any proposals to extend the current high rates applying to individual income, corporate income, and excises. These are taxes that affect the pocketbook of every voter—busi-

ness man, housewife, farmer, and wage earner.

If Treasury Secretary George M. Humphrey succeeds in meeting his goal of a balanced budget by mid-1954, the whole tax problem will disappear. Scheduled reductions will be permitted to go into effect without quibbling. Trimming the government's shopping list—particularly in the area of military spending—will not be easy. But Mr. Humphrey and Budget Director Joseph M. Dodge believe it can be done.

**Keep Oil Controls? . . .** Continuing shortage of high-octane aviation gasoline crimps Eisenhower Administration plans for wide-scale scrapping of federal controls over oil and gas production.

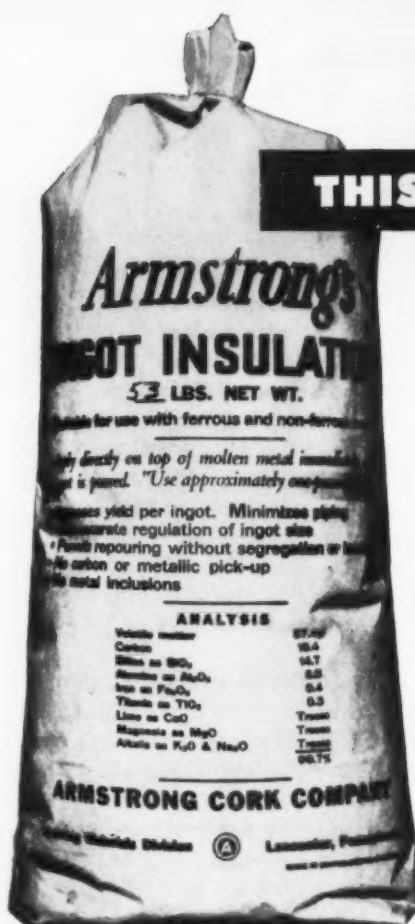
Even Secretary of the Interior Douglas McKay, who is committed to a policy of liquidating controls, is asking Congress for authority to continue the Petroleum Administration for Defense in only a slightly limited form.

**PAD's New Job . . .** Reorganized PAD, if it wins approval from Capitol Hill, will continue to exercise at least two rigid control orders. One bars the use of alkylate in regular automotive fuel, and permits PAD to channel stocks of alkylate into avgas.

The other sets a floor on the amount of tetraethyl lead fluid that is used in commercial grades of avgas. This insures that the octane requirements for such gas are met by the use of tetraethyl lead, and not scarce alkylate.

Effect of these two orders to make available to the military about 12,200 bbl of avgas daily that would not be produced.

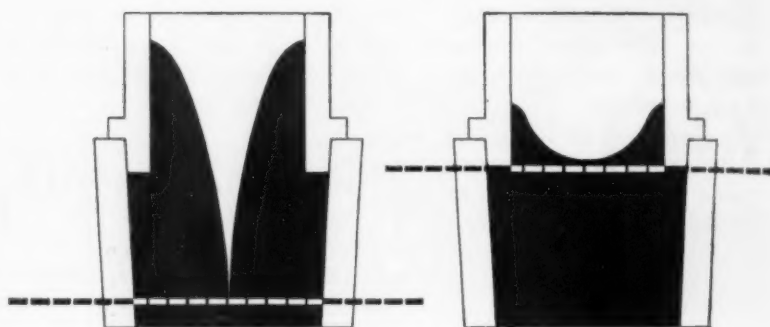
**Steel Pool Visitor . . .** Chairman Jean Monnet of the High Authority of the European Coal and Steel Community is coming to the U. S. early in June to discuss with President Eisenhower operations of his multi-nation agency.



## THIS INGOT INSULATION

cuts your cropping loss

20% to 30%



**WITHOUT ARMSTRONG'S  
INGOT INSULATION**

Large crop necessary because of too rapid cooling. Result—deep crop.

**WITH ARMSTRONG'S  
INGOT INSULATION**

Steel stays molten longer, filling pipe as it forms. Result—smaller crop.

Armstrong's Ingot Insulation can cut cropping waste up to 30% on every ingot you pour.

Here's how this material, composed of carefully graded particles of cork coated with special clays, helps you save more steel.

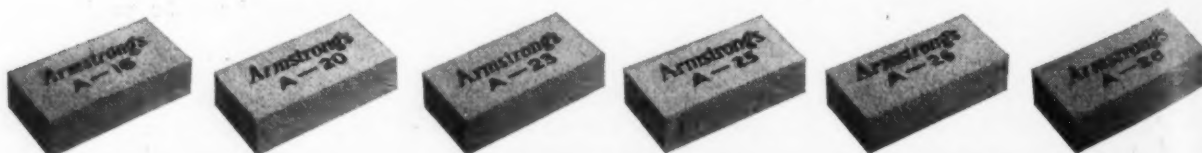
When you add Armstrong's Ingot Insulation to the top of the molten metal after pouring, you're trapping heat right in the hot top. Too rapid cooling is prevented and the steel stays molten longer. Being molten, it "feeds" properly and fills the pipe as it forms. You avoid the waste of deep pipe penetration.

The insulating value of the cork remains effective right through solidification. Protected by their clay coating, the cork particles stay

intact—are not consumed immediately by the heat of the molten steel.

This is a clean treatment. There is no carbon pickup, no non-metallic inclusions. Neither chemical nor physical compositions are altered. Any residue of clay or cork remains intact and floats to the surface if the ingot is re-poured.

See for yourself how Armstrong's Ingot Insulation can help boost your steel output. Send for a free sample or have an Armstrong engineer cooperate with you in conducting tests right in your own plant. Call the nearest Armstrong office or write to Armstrong Cork Company, 2805 Susquehanna Street, Lancaster, Pennsylvania.



## ARMSTRONG'S INSULATING REFRACTORIES

# CONTROLS: 'Freeze is Empty Gesture'

Rep. Wolcott vows House will kill Senate bill taking power to freeze wages, rents, prices from Ike . . . ODM's Flemming argues need for some strategic controls—By R. M. Stroupe.

Detours are now visible on the tortuous path being followed by the price-wage-rent freeze language in S. 1081, the controls bill which recently experienced a rocky trip through the Senate.

As approved by that body, the President cannot invoke the 90-day clamp unless Congress either declared war or put through a resolution specifically allowing the action. Though this provision puts into congressional hands the power to trigger controls, the House is not likely to agree to it.

## "Serves No Purpose"

Rep. Jesse P. Wolcott, R., Mich., whose banking committee opened hearings on S. 1081 last week, predicts flatly that the House will kill the freeze section, which he calls an "empty gesture." As okayed by the Senate, he says, the section "serves no purpose" and might even act as an inhibiting force on business.

Lawmakers he knows, he emphasizes, could write a "better freeze order than is contained in the Senate bill." He believes the Senate has done a "very unwise thing" in providing for short-term controls authority on the basis of a concurrent resolution.

## What ODM Wants

His committee has heard Dr. Arthur S. Flemming, director of Office of Defense Mobilization, argue for these portions of the Senate bill: Continuation for 2 years of government allocations authority in the critical materials and facilities field; extension of federal power to lend money to boost production of scarce items; and additional life for Small Defense Plants Administration. In general, Dr. Flemming said, the Administration does not request enactment of a minutely detailed standby controls law.

As the ODM chief's testimony made clear, the Administration is avoiding asking for any provision to allow the President arbitrary freeze powers. Decision on this issue, Dr. Flemming maintained, ought to be "decided on the basis of whether . . . Congress, in its judgment, could act quickly enough to grant such authority in the event of an emergency."

## Continue Mineral Programs

On the question of scarce-metal-and-mineral supplies, Dr. Flemming told the committee the U. S. has arrived at "the area of selective expansion." He attached "great importance" to programs designed to stimulate output of such items as nickel, cobalt, mica, and titanium. Admitting that results of these efforts have been accruing very slowly, he argued that it is of vital consequence to continue the programs.

Dr. Flemming asserted that "with few exceptions" the government will not attempt to distribute or specify the use of scarce materials. But, he added, Washington may feel it necessary to tell manufacturers how certain short-supply

items may be used. Some of the materials he gave as examples were tungsten, cobalt, and titanium.

To make certain that at least some mobilization plans are on paper before an emergency occurs, the Administration spokesman said, an executive-branch planning organization with a small staff must be established. Included in the group would be persons familiar with controls measures and capable of working out a competent, equally-shared controls system.

Working under assigned deadlines, the staff would draw up and keep current both proposed legislation and operating schemes for price-wage-rent control and rationing of consumer goods. It would give principal consideration to indirect forms of control and would—Congress willing—cooperate with the Senate and House banking committees

## Debate Freeze Authority

This planning-staff suggestion drew little criticism from the House committee, which also made no strong argument against the metals allocations testimony. On the other hand, the question of the presidential freeze authority was roundly debated. In the main, Republican members oppose this authority, while some Democrats urge that it be granted.

This latter portion of the Senate bill may not be the only section to die a quick death. Best forecasts indicate sure approval only for the allocations powers related to basic metals, though other sections may also get favorable House action.

## Where to Find Government Specs

A new *Specifications Directory* issued by Small Defense Plants Administration lists places maintaining partial or comprehensive files of standard government specifications and military and civilian specification indexes.

Copies are available at all Commerce Dept. and SDPA field agencies, offices of military small business specialists, and depository libraries receiving government publications.



"Great speech, Al. I liked the straightforward way you dodged the issues."



# R. D. Wood Hydraulic Presses



"... that industrial equipment  
which has maintained  
high excellence in manufacture  
will continue to be sold,  
and will contribute its worth  
to uplifting the general  
quality of everything produced  
in industrial America..."

2,000 ton automatic, heavy duty,  
self-contained hydraulic press for  
continuous service on such operations as  
hot forging, forming, coining and forcing.



**R. D. WOOD COMPANY**

PUBLIC LEDGER BUILDING, PHILADELPHIA 5, PA.

**150<sup>th</sup>**  
anniversary

HYDRAULIC PRESSES AND VALVES FOR EVERY PURPOSE • ACCUMULATORS • ALLEVIATORS • INTENSIFIERS

THE IRON AGE

### Titanium Output to Jump in August

**Cinderella metal output to reach 10 tons per day this summer at Titanium Metals Co. . . . Present 4 ton rate will be hiked by \$10 million expansion now underway—By T. M. Rohan.**

Titanium users wondering when they can get more of the wonder metal got some consolation last week from E. J. Hanley, president of Allegheny Ludlum Steel Corp. Mr. Hanley, whose company owns half of Titanium Metals Co., said in San Francisco last week that the long-awaited 10 tons per day output should be reached in August. The present 4 ton rate will be boosted by a \$10 million expansion program now under way, principally installation of purifying equipment.

**Most Flat Rolled . . .** Output from the Kroll process is currently going into same general product spread as Allegheny's stainless output. Largest category is 60 pct in flat rolled products plus wire, strip, bars and sheets. Most is trucked out, but occasionally flown when badly needed.

Total Allegheny steel sales in the first quarter were about \$68 million compared to about \$52 million in 1952, and more could be shipped with additional equipment. The new \$56 million hot mill at Brackenridge, Pa., will help.

Allegheny this week is also introducing a patented S-816 forgeable alloy. It resembles A-286 but is leaner, requiring less strategic materials. Major use will be aircraft wheels and jet engine blades. Allegheny is also "going overboard" on silicon steel for the heavy western electronics market and electrical core equipment.

**A Lever, Maybe? . . .** Southern California industry and utility circles are watching with interest a power play at Fontana, Calif.

Kaiser engineers are now de-



TEN MILLION fasteners are turned out monthly at Bethlehem Pacific's San Francisco nut and bolt shop, weighing about 10,000 tons. This shop accounts for 7 to 10 pct of the plant's steel production.

signing a 100,000 kw steam turbine generating station adjacent to the Kaiser mill, have requested bids for steam turbine generators and allied equipment. At the back door the Southern California Edison Co. is nearing completion of its \$37.4 million, 250,000 kw Etiwanda steam station. First of two generators is scheduled to go into service about July.

No western steel plants have their own power sources, due largely to cheaper hydro power which cuts costs to about 2 mills per kwhr compared to about 3.5 for midwest and eastern plants. Kaiser has gained power plant ex-

perience after installing the Chalmette, La., plant for aluminum reduction. And recent rate increases by Southern California Edison give Kaiser added incentive to seek a better rate or put up its own plant.

**Warehouse Smoke . . .** Smoke from western steel warehouses last week came from the pricing sections. Harried clerks worked overtime calculating new prices based on raises in "extras" by mills. While larger warehouses sweated out new prices, smaller ones waited for "big house" quotations so they could simply follow suit.

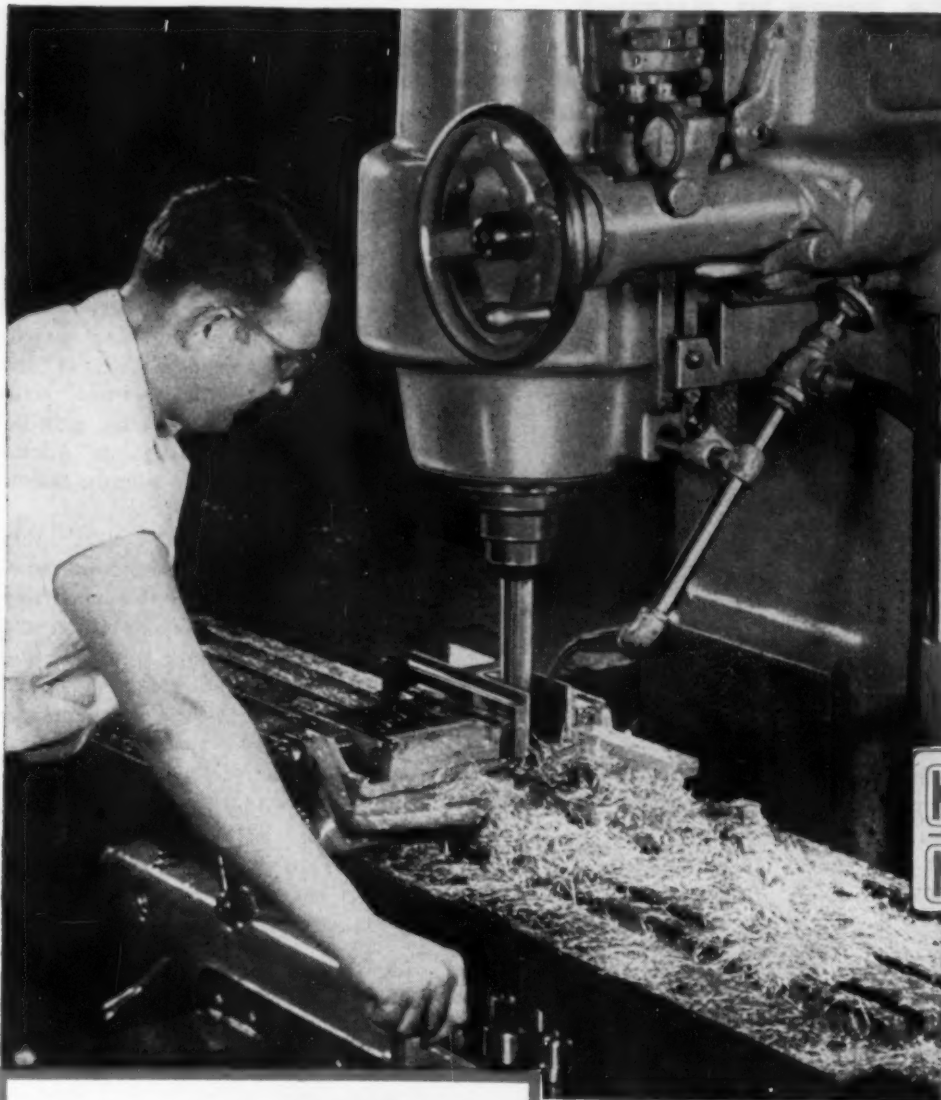
Supply picture has considerably improved in last few months, however, and demand continues strong with only mild complaints expected over price rises. Hot and cold rolled sheets remain shortest in supply and are expected to stay so until the third quarter, then should be somewhat easier.

Long-standing plate shortage, especially 3/16 and 1/4 in., shows little sign any chance of improvement in supply for the balance of this year.

**Nuts & Bolts . . .** The West at least makes all the nuts and bolts it needs. Last week, Bethlehem Pacific, largest western producer with shops in Seattle, Los Angeles and San Francisco showed off the latter. The San Francisco plant now puts out 10 million pieces monthly weighing 10,000 tons, or about 7 to 10 pct of the adjacent steel plant output.

Unique western nut and bolt product is L-shaped anchor bolts for foundations. Required by California law because of earthquake danger, they range from 6 in. to king-size 5 ft long, 2.5 in. diam for bridges. On large bridges, powerhouses, etc., these are imbedded in concrete to hold baseplate columns. And frame homes must have top structure anchored to foundation with anchor bolts.

# Load, engage feed and unload — that's all there is to it with this **CH** miller!



## HERE ARE THE JOB FACTS

Co.: Aeroaffiliates, Inc., Fort Worth, Texas

Machine: 10 hp, No. 3 Model CH Vertical Milling Machine

Depth of cut: 2 inches

Feed rate: 6 3/8 ipm

Cutter: 4-lip HSS 1 1/4 inch end mill



CH Milling Machine features that helped increase output — cut cost per piece



Greater Cutting Efficiency through spindle mounted flywheel, (optional), running with three bearing support.



Greater operating convenience through Mono-Lever control (optional) for table feed and rapid traverse.



Smoother Feed Performance through large dia. heavy-duty table feed screw that affords greater bearing contact. All models are equipped with a back-lash eliminator.

**Aeroaffiliates of Texas select Kearney & Trecker 10 hp No. 3 Model CH Vertical Milling Machine with Mono-Lever and Automatic Cycle Table Control, to speed milling of aircraft parts and reduce operator fatigue!**

**T**O finish-mill aluminum vertical beam fittings, this manufacturer put production on an almost automatic basis without sacrificing accuracy. He's handling the job on a 10 hp, No. 3 CH Vertical Milling Machine equipped with Mono-Lever and Automatic Cycle Table Control.

Now, after the original setup, all the operator does is load the machine, engage the feed and unload. Production is up, accuracy is maintained and operating conditions have been greatly improved due to the reduction in operator fatigue.

Check this great CH line of machines for yourself. See how you, too, can cut costs, increase productivity, improve safety, get better finished products. Contact our representative or write Kearney & Trecker Corp., 6784 West National Avenue, Milwaukee 14, Wisconsin.



## Machine Tool High Spots

### More Ordnance Orders Are Coming

**Current Ordnance Dept. plans call for purchase of an additional \$12 million worth of machine tools . . . Will be used to raise output of ammunition components—By E. C. Beaudet.**

Machine tool builders can still look forward to a sizable amount of new orders from the Ordnance Dept. Current Ordnance planning calls for the purchase of an additional \$12 million worth of machine tools, according to officials at the Ordnance Ammunitions Center, Joliet, Ill.

Some of the new machine tools will be used by ammunition component manufacturers as replacements. Others will be added to production lines to increase output.

Approximately 900 prime component contractors are now participating in the \$2.5 billion annual ammunition program being directed by the Center.

**Service Too Long . . .** Some of the tools that have been in use since 1950 when the Korean conflict started are World War II machines obtained from government storage depots. Many of them received hard service during the war and were not in top condition when put back into production in 1950 and 1951.

In addition to the new orders to be placed, a considerable quantity of machine tools already on builders' order books remains to be delivered. Delivery of about \$30 million worth of equipment needed to make ammunition parts is still being awaited by some 70 firms holding ordnance contracts.

Some of this equipment has been on the books of machine tool manufacturers for as long as 8 months, although the average is about 6 months.

**Need Special Tools . . .** Responsible sources at the Ordnance Ammunitions Center state that procurement of special machine tools

for ammunition parts makers is the most troublesome aspect of the purchasing program. Difficulty in obtaining this type of equipment, which takes longer to build than standard general purpose machine tools, is retarding acceleration of the ammunition program.

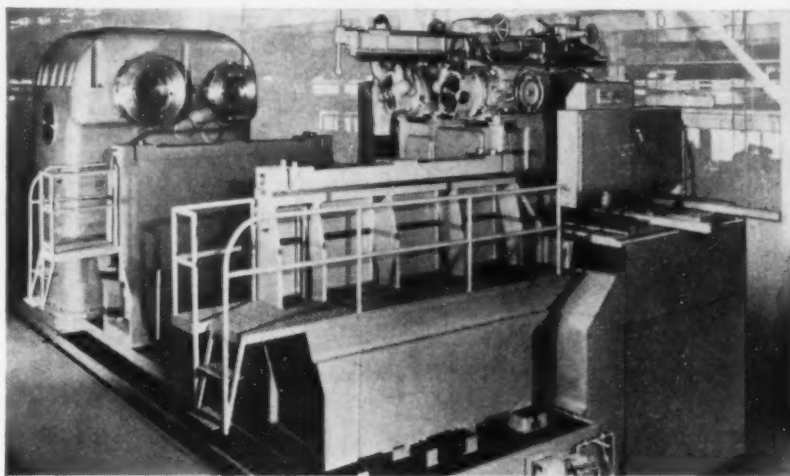
Shell turning lathes, which convert forgings into finished artillery shells, are the most urgently needed tools now on back order. Next in line are presses—hydraulic and mechanical—screw machines and grinders.

Ammunition manufacturers generally fall into two categories. The

beginners who got into the program as early as 1951 and those who came into the program in the latter part of 1952.

**Early Birds Got Leftovers . . .** Early participants in the ordnance program report they had considerable difficulty with machine tools they received from reserve pools. Breakdowns and incorrect output ratings on the machines slowed production, but these producers are now ordering and receiving replacements.

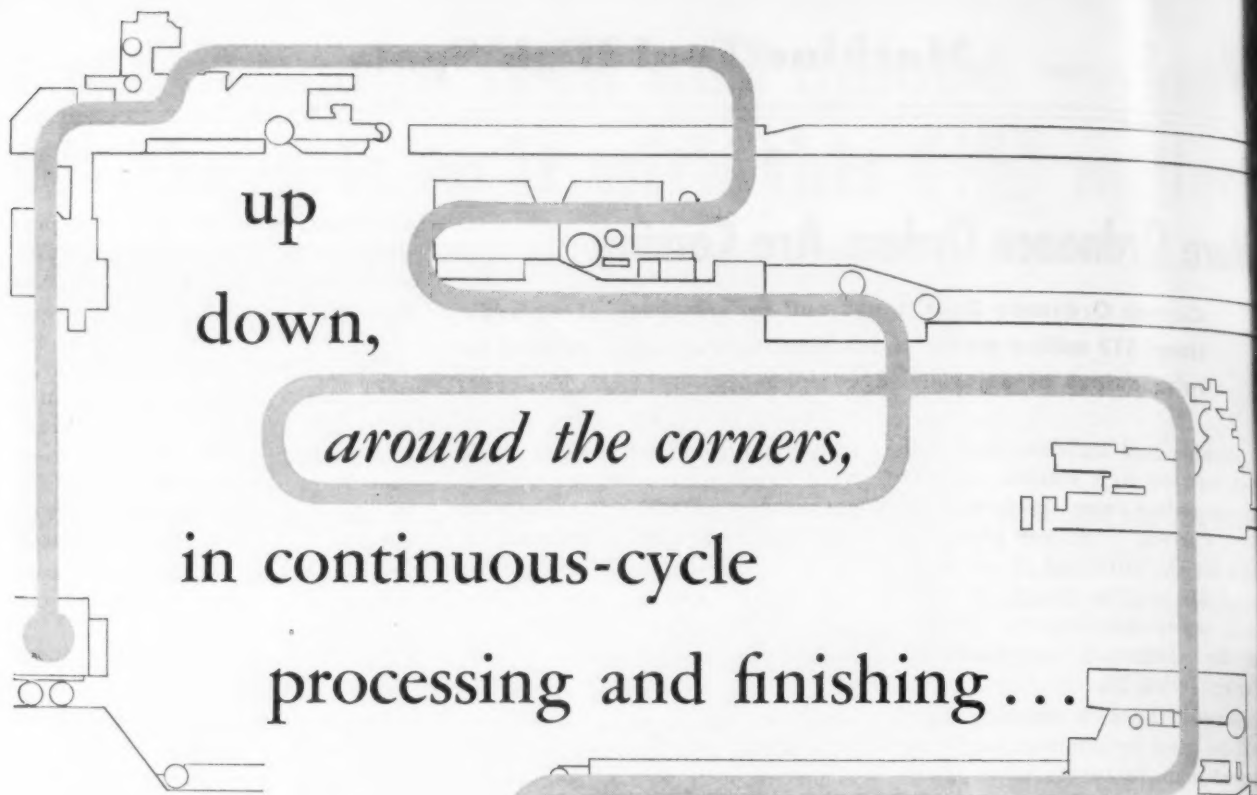
The second category of ammunition manufacturers, those who came into the program at the end of 1952, after the machine tool reserve had been depleted, experienced less difficulty. They were able to order new machine tools at the start and as a result had fewer breakdowns when they began production.



### Build Giant Gear Shaving Machine for Navy

Replacement of reciprocating engines by steam turbines for marine propulsion forced the use of giant reduction gears which require exact machining. To perform this type of work, National Broach & Machine Co. recently completed the largest gear shaving machine ever built.

Weighing 115 tons, the giant gear shaving machine has twin journals in each of the work carrying pedestals and twin spindles in the headstock which enables it to machine gears ranging in size from 30 to 180 in. in diam. Built for the Navy, the new unit will soon be shipped to an East Coast shipyard.



the productive flames of **GAS**

do it for **LEWYT**

Around the floors, and through the floors, the heat-processing and finishing operations at the Lewyt Corporation plant in Brooklyn are continuous and largely automatic.

Obviously, this kind of productioneering requires maximum use of that most flexible and versatile fuel—GAS.

Lewyt engineers use GAS as a precision tool. As a result, they maintain efficient material-labor productivity ratios and uniform high quality of the end products with favorable manufacturing costs.



But this progressive builder of Lewyt Vacuum Cleaners, who also builds other mechanical and electronic equipment for the U. S. Government, is simply using GAS for what it is—a precision tool from pipelines, indispensable to continuous advancement in our technical economy.

Quite probably you can use the productive flames of GAS for more efficient productioneering. It will pay you to investigate it.



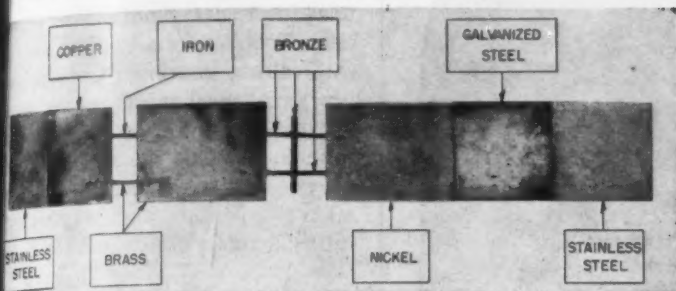
**THE AMERICAN GAS ASSOCIATION**

420 LEXINGTON AVE. • NEW YORK 17, N. Y.

# NEW G-E SYNCHRONOUS WELDING CONTROL

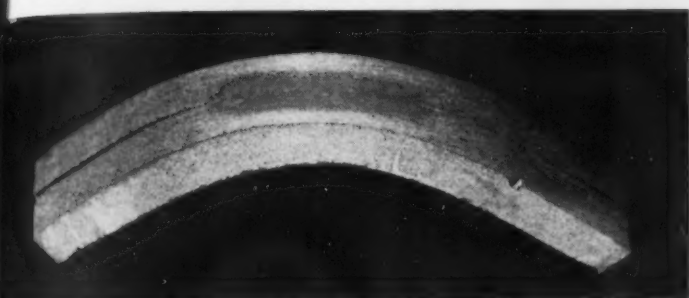
## FOR DIFFICULT WELDS

such as these hard-to-weld metals joined by resistance welding



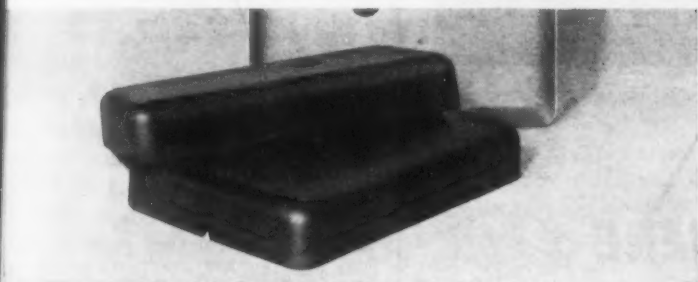
## OF HIGH QUALITY

like these welded pieces of aluminum, bent 45° without cracking



## AND GOOD APPEARANCE

such as the smooth, welded corners on the relay enclosures



This new G-E synchronous-precision welding control has only *one moving part*, a relay which operates the solenoid valve. There are *no relays* at all in the sequencing control. This means fewer parts to wear out, lower maintenance, and more consistent welding.

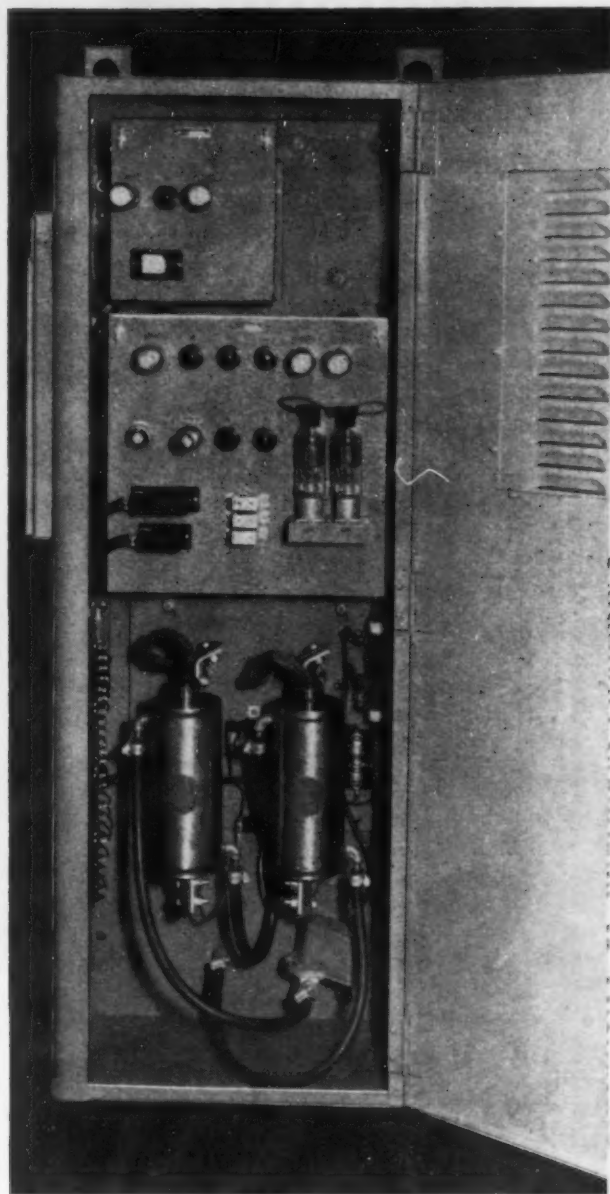
By controlling every variable involved in resistance welding except resistance, this new panel gives closer control over weld quality. By providing close current and timing control, it effects real savings in material and time, fewer rejects.

This control is available in both 600 and 1200 ampere frames, for all types of welding machines. Simple plug connections will change the control from one kind of welding to another.

The new synchronous-precision controls are part of General Electric's complete line of resistance welding controls. For further information, contact your nearest G-E Apparatus Sales Office or your welding machine manufacturer.

RESISTANCE WELDING CONTROL

**GENERAL  ELECTRIC**



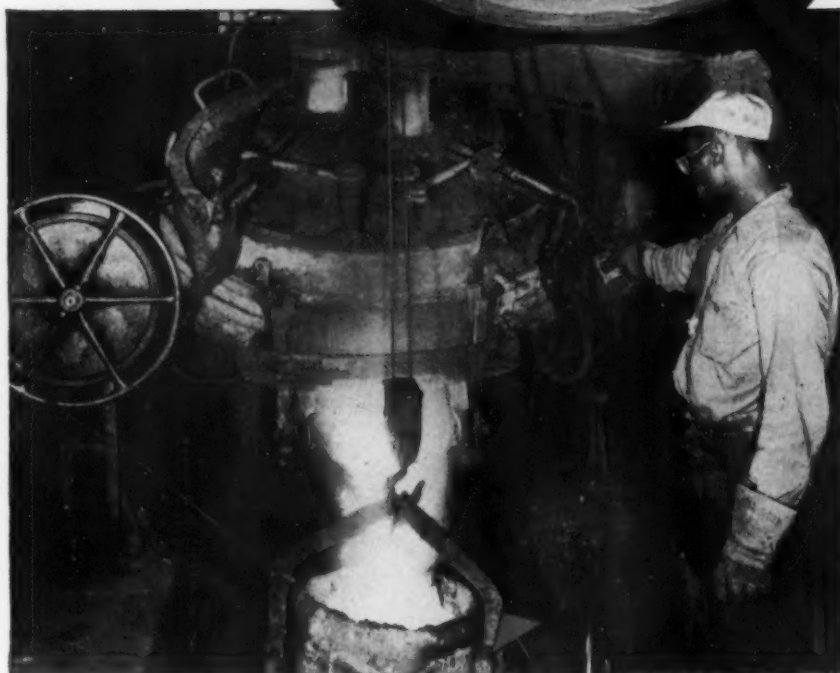
Section E785-2, General Electric Company,  
Schenectady 5, New York  
Please send the following:

- ☐ GEA-5816 "The Story of Resistance Welding," a new bulletin describing the fundamentals of resistance welding and the basic types of control.
- ☐ GEA-5945 "Synchronous-Precision Control for Resistance Welding," a new bulletin describing the complete line of G-E synchronous controls.

NAME \_\_\_\_\_ TITLE \_\_\_\_\_  
COMPANY \_\_\_\_\_  
ADDRESS \_\_\_\_\_  
CITY \_\_\_\_\_ STATE \_\_\_\_\_



# SHAMVA® RAMMING CEMENT HERE



## PAYS OFF FOR FERRO MACHINE HERE

Ferro Machine & Foundry Inc., Cleveland, Ohio, one of the largest independent gray iron foundries in the U.S., has been in business over 40 years. Their specialty is automotive type castings. To keep production up, Ferro puts 38 tons of high strength alloy iron through a "Q" Lectromelt in 16 hours. At 2900° this pace has been death on furnace roofs. Using special shape silica roofs, Ferro was getting a service life of 4 weeks per roof. After switching to Shamva 65G ramming cement, Ferro now reports an increase of roof life to 7 weeks.

Shamva cements, as well as Shamva brick and shapes, can do a job for you, too. Why not see what Shamva can do for your production curve. Our field engineers will be glad to discuss it with you.

## THE MULLITE REFRACTORIES CO. SHELTON, CONN.

In Canada, Shamva Products Co., Ltd., Niagara Falls, Ontario.

### Free Publications

Continued

#### Tools, machinery

In a new bulletin, Baldwin-Lima-Hamilton Co. presents its line of machine tools, manufactured by the Niles Tool Works subsidiary, and its can-making machinery, diesel engines and mechanical presses made by its Hooven, Owens, Rentschle branch. Among the machine tools shown and described are boring mills and planers, engine lathes and railroad tools. *Baldwin-Lima-Hamilton Corp.*

For free copy circle No. 14 on postcard, p. 97.

#### Rare earths

Two rare earth data sheets were recently made available by Metallurgical Enterprises. One sheet describes REF, a rare earth fluoride refined from Monzite sands. It is being used as both a nodulizer and a neutralizer. The other bulletin gives information on N-I-Mix which is a balanced composition of elements which produce nodulation. The mix contains neither nickel nor copper and is said to eliminate the need for secondary inoculation. *Metallurgical Enterprises.*

For free copy circle No. 15 on postcard, p. 97.

#### Pallet trucks

A new comparison chart covering hand-operated hydraulic pallet trucks has been issued by Lewis-Shepard. The chart is designed to permit an objective point-by-point comparative analysis of pallet trucks made by various manufacturers. All the prospective buyer has to do is to fill in on the chart comparative data issued on units produced by different manufacturers. *Lewis-Shepard Products, Inc.*

For free copy circle No. 16 on postcard, p. 97.

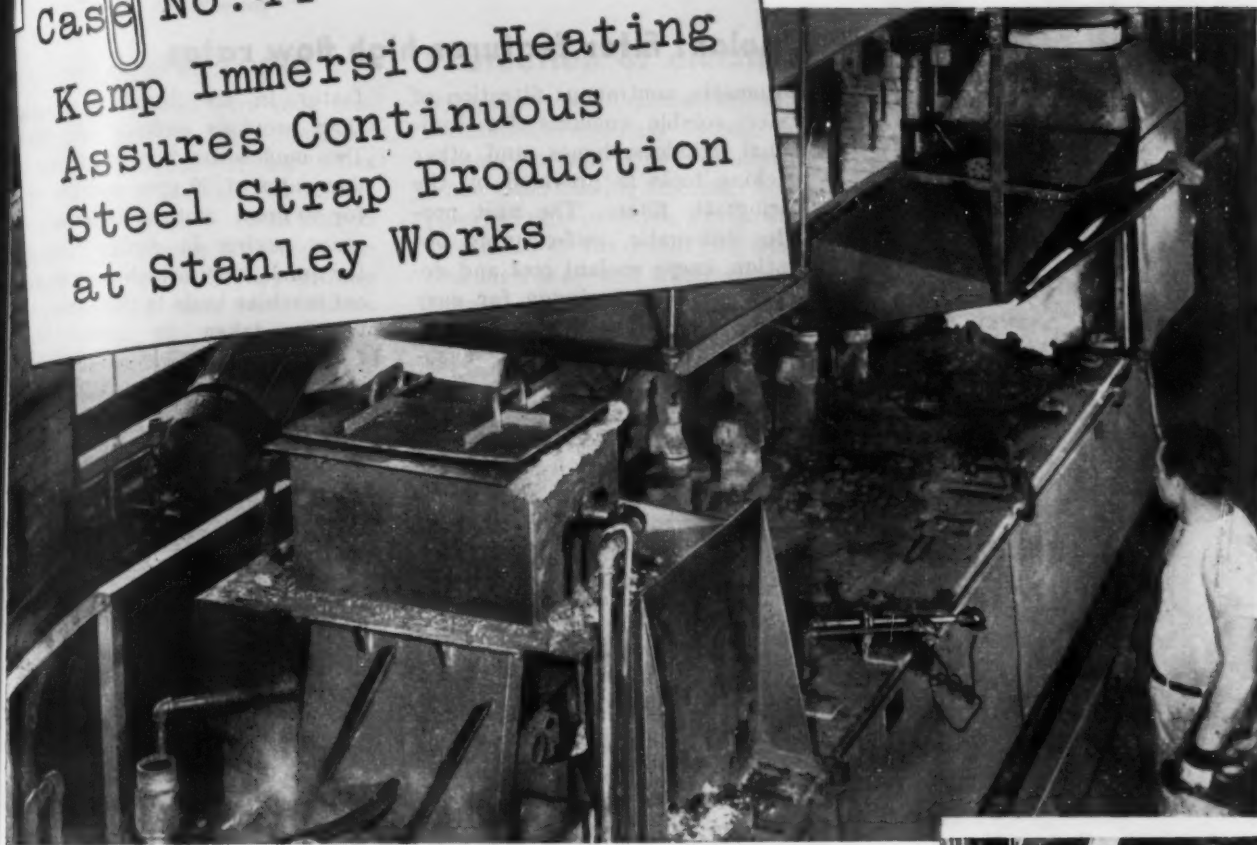
#### Testing equipment

American Research Co. has released a new folder illustrating its basic environmental test chambers. Units are available for testing materials under different altitudes, temperatures and humidities, rain, sunshine and other conditions. *American Research Corp.*

For free copy circle No. 17 on postcard, p. 97.

Case No. 44

## Kemp Immersion Heating Assures Continuous Steel Strap Production at Stanley Works



### How Stanley doubled steel strap capacity overnight . . . slashed fuel costs, too

Today this bustling division of the famous Stanley Works at New Britain, Conn., turns out steel strapping on a 24 hour basis. Starting with raw, high carbon steel on giant spools, strap is semi-annealed, finished, coated and rewound again for shipping in one *continuous* process. New rolls of raw steel are simply spot-welded to the ends of rolls to eliminate any interruption.

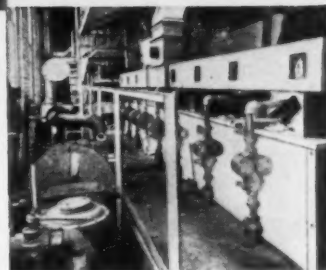
#### Kemp Eliminates Bottleneck

From an output limited by the capacity of a gas underfired pot, production was doubled on the installation of a 32 ton Kemp Immersion Melting Pot. In addition, Kemp's *greater* heating surface, *faster* heat recovery, *lower* dross formation and *accurate*

temperature controls meant real savings in fuel costs. In the words of Mr. Harold Heckman, plant foreman, "Through quicker heating of this pot, we are able to maintain production schedules." And unlike underfired pots, Kemp units eliminate open flame hazards and excessive room temperatures.

#### Let Kemp Help with Your Problems

If you're dissatisfied with your present heating or melting equipment, consult Kemp first before you make any changes. Let Kemp Engineers show you how they can solve your tempering, annealing, descaling or coating problems quickly and easily. Then just like the Stanley Works, you'll be *time* and *money* ahead.

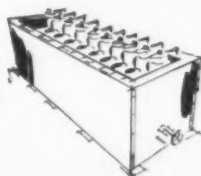


Rear view of Kemp Pot at Stanley Works shows gas feed lines, fire checks, and the Kemp Carburetor (left). Part of every Kemp installation, this carburetor assures complete combustion . . . without waste . . . without tinkering. Just set it, and forget it.

For more complete facts, ask for Bulletin IE-11. Write: C. M. KEMP MFG. CO., 405 East Oliver Street, Baltimore 2, Md.

# KEMP

OF BALTIMORE

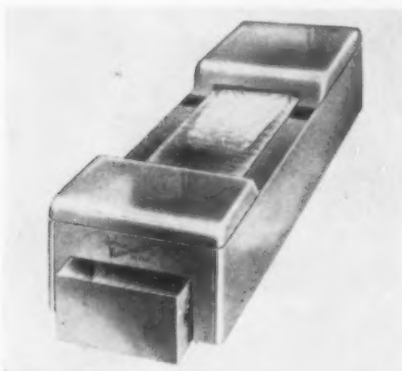


### IMMERSION MELTING POTS

CARBURETORS • BURNERS • FIRE CHECKS  
ATMOSPHERE & INERT GAS GENERATORS  
ADSORPTIVE DRYERS • SINGING EQUIPMENT

## New Equipment

Continued



### Coolant filter features high flow rates

Automatic, continuous filtration of water soluble coolants for individual grinders, hones, and other machine tools is provided by the Vacu-matic filter. The unit provides automatic, self-cleaning operation, keeps coolant cool and delivers de-watered sludge for easy disposal. Employing vacuum, rather than gravity, the Vacu-matic is described as four times

faster in its filtering operation than previous endless belt filters. Two models are furnished: one for flow rates of 20 gpm and the other for 40 gpm. Both are compact and space saving in design, intended for quick, easy attachment to present machine tools in the same space usually taken by sump tanks. *U. S. Hoffman Machinery Corp.*

For more data circle No. 22 on postcard, p. 97.



### Mix-muller fits into laboratory and pilot plant

New Simpson LF mix-muller has been designed to provide laboratories and pilot plants with a small working duplication of production mixing so that they may establish mixing standards or check quality and efficiency. The LF has a 24-in. pan diameter, and all components—mullers, turrets, crib, and batch capacity—are in direct proportionate scale to the large production-size Simpson mix-mullers. The rubbing, kneading, smearing action of

the well-known mortar and pestle are said to be duplicated by the LF's revolving mullers and plows. The spring-loaded mullers can be adjusted to exert pressures from 30 to 80 lb. Unit may be adapted for heating or cooling while mixing, and can be furnished in stainless or other special metals. Legs on the LF are adjustable for comfortable working height. *National Engineering Co.*

For more data circle No. 23 on postcard, p. 97.

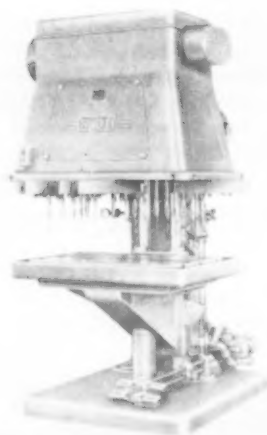


### Rotary painters index or operate continuously

Automatic, rotary-indexing painting machines may be completely air-operated or actuated, if required, by electric-motor Geneva drive. The machine illustrated has 24 workholders and indexes 12 times per each complete revolution of the table, painting the inside of rocket heads two at a time. The part cavity is 8 in. deep and the painting is done on the return stroke, with the work being revolved by a variable-speed air drive. Speed of stroke during painting

can be regulated by a convenient dial and speed of indexing, similarly, can be controlled by another dial to paint from 400 to 1200 pieces per hr. The machine operates in conjunction with a continuous, circulating paint system; can be supplied with hot-spray equipment. Machine can be built for 4, 6, 8, 12, or 24 station indexes or for continuous movement. *Conforming Matrix Corp.*

For more data circle No. 24 on postcard, p. 97.



### Multiple driller suitable for plastics, metals

A rectangular hood type machine, Root Style F400, has universally adjustable spindles for drilling many different jobs on one machine. The hood has an 18 x 36-in. rectangular drilling area with provision for adjusting the spindles to any point in the hood area. A 10 hp spindle motor drives the spindles through a variable speed mechanism, allowing adjustment of spindle rpm to suit various size holes and materials. Hydraulic table

feed is employed. Rapid table traverse allows rapid advance to point of drilling, normal drilling and rapid return. Foot treadles control the feed stroke, allowing the table to be started, stopped or reversed at any point of the feed or return stroke. The feed rate is stepless, providing the most advantageous feed rate for each drilling job. *B. M. Root Co.*

For more data circle No. 25 on postcard, p. 97.

Turn to Page 109

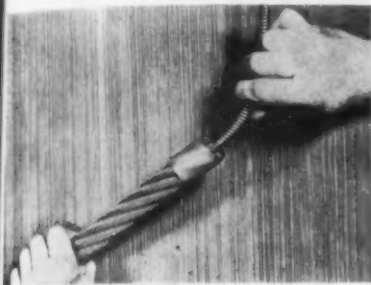


## New Equipment

Continued

### Spring-center rope

A new principle in wire rope construction employs the combined abilities of the coiled spring to flex and to resist crushing. The result: a wire rope with a core that is a coiled steel spring. The rope was developed for use in rotary drilling rigs, and field tests have shown



that it will have the long life, despite hard usage, which rotary rig drillers need. The void inside the spring-center wire rope provides a reservoir for lubricant, giving more constant maintenance of lubrication than other wire ropes. *Jones & Laughlin Steel Corp.*

For more data circle No. 31 on postcard, p. 97.

### Utility jig saw

Portable electric jig saw will do the work of a jig saw, sabre saw, keyhole saw plus most band saw operations. It can be easily held and guided with one hand, is supplied with five different types of



blades for cutting hard and soft wood, plywood, ferrous and non-ferrous metals, rubber, and plastics. The jig saw can be mounted within seconds in an accessory table for bench work. It makes straight, curved or irregular cuts with equal ease. Weighs only 3½ lb. *Black & Decker Mfg. Co.*

For more data circle No. 32 on postcard, p. 97.

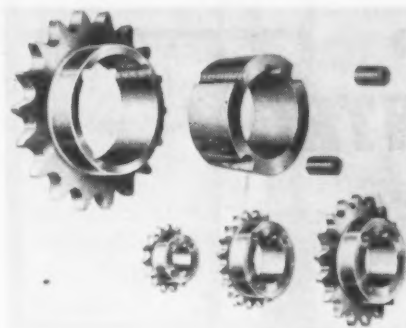
### Protection of aluminum

Oxidation and discoloration of aluminum, stainless steel, and chrome are said to be prevented by a new clear coating that may be applied by spray or brush. Preparatory treatment of the metal consists of thorough soap and water cleaning. Once the coating is applied, it prevents oxidation of the metal surface. The coating will not discolor. *Silvercote Products, Inc.*

For more data circle No. 33 on postcard, p. 97.

### Taper-Lock sprocket

Taper-Lock stock roller chain sprockets are keyed to shafts for easy, quick installation and removal. Shrink fit grip eliminates need for turning and grinding shafts to get a tight fit. Sprockets have no flanges or protruding parts and



require no more space than standard sprockets. Flush hub design contributes to safe operation. Sprockets fit any chain manufactured to American Standards, #40 through #100. Type B sprockets are available in ½, ⅝, ¾, and 1¼ in. pitch. *Morse Chain Co.*

For more data circle No. 34 on postcard, p. 97.

### Diamond wheels

Electroplated nickel bond diamond wheels are said to afford major economies in cost-per-tip carbide tool grinding. The bonding process deposits electrolytically a dense nickel bond around each diamond particle. Diamonds are held firmly; do not break out or impact; extended wheel life is obtained at greatly reduced cost. *Ohio Metal Working Products Co.*

For more data circle No. 35 on postcard, p. 97.

Turn Page

# P&H

## Welding Equipment

speeds production  
schedules, cuts costs

### P&H LOW-HYDROGEN ELECTRODES



13 types for high-strength welds on problem steels, steel castings, nickel-alloy steels, chrome-moly steels, .40 carbon castings, high-hardenable steels, aircraft and similar steels.

### P&H POSITIONERS

Position heavy weldments for economical down-hand welding. Complete range of sizes to handle work from 2500 to 36,000 lbs. — remote-control and hand-operated models.



### P&H WN-301 Engine-Driven DC ARC WELDER

2- or 4-  
Wheel  
Mountings



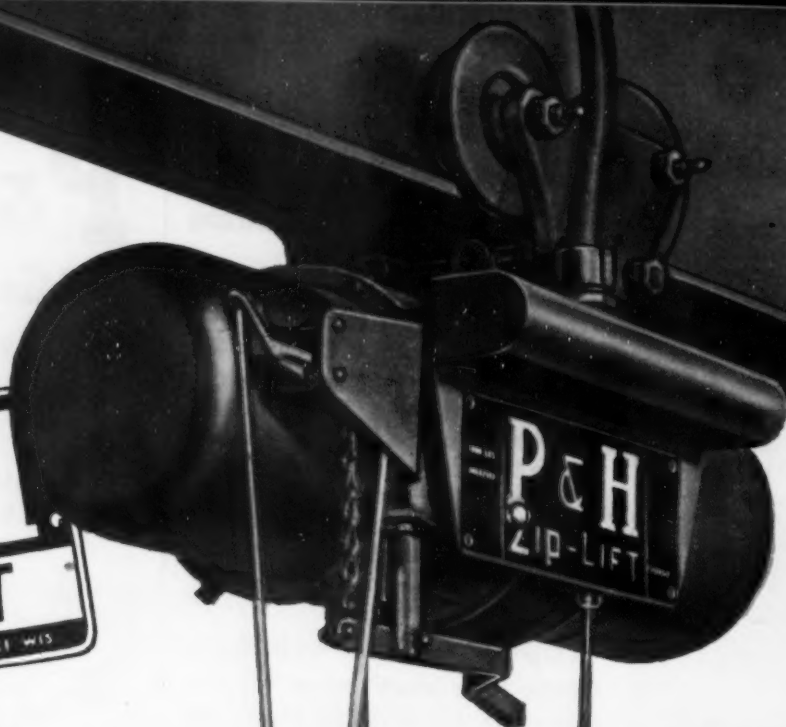
Portable. Equipped with Dial-electric Control, for fingertip heat control at the work — gives you faster, better welding. Runs at only 1750 rpm. Welding service range, 60-375 amps, NEMA rated.

Ask your P&H representative or distributor for complete information, or write for free bulletins.

**P&H WELDING DIVISION  
HARNISCHFEGGER  
CORPORATION**

4401 W. National Ave., Milwaukee 46, Wis.

2494A



# NOW — A NEW "ZIP"

## WITH ROPE CONTROL\*

ONLY **\$199<sup>50</sup>**

Now, for the first time, the famous Zip-Lift Electric Hoist at the amazing low price of *only* \$199.50. It's a genuine Zip-Lift . . . with all the solid quality you expect from P&H. The same preferred P&H engineering! The same fine P&H construction! *And* — a unique, new rope control designed for fast "one-hand" hand operation. It's the big bargain today in small hoists. It's ready to work and save for you! The Zip-Lift frees skilled hands for more productive work. No more valuable time lost juggling heavy loads manually! P&H "Thru-the-Air" handling makes production costs *un*believable.

Call your nearest P&H dealer and have him tell you about the latest handling ideas. He'll show you where and how the Zip-Lift will cut costs *for* you!

**PUSH BUTTON CONTROL ALSO AVAILABLE AS OPTIONAL EQUIPMENT.**



### Users! Dealers!

Get the whole story about this new Zip-Lift with all its high quality features at such a surprisingly low price. It's the real *wire rope* hoist you've waited for. Write for your copy of Bulletin H-29.

**P&H** HOIST DIVISION  
**HARNISCHFEGER**  
CORPORATION  
Milwaukee 46, Wisconsin

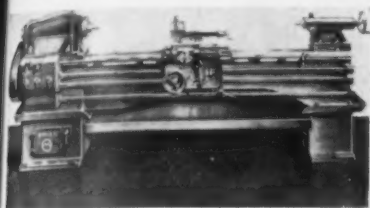
UNIVERSITY OF MICHIGAN LIBRARIES

## New Equipment

Continued

### Job shop lathe

Relatively heavy, the structure of the bed and units of the Simplex 20-in. lathe check out to recognized precise standards of accuracy; are valuable for job shop work. Spindle is hardened and ground with American Standard spindle



pose. Helpful is gap bed feature, which swings to 30 in. and is removable block type, reinforced. Norton gear box is fitted with spline shafts and incorporates shear-pin type safety device, giving full range of American and metric standard threads. *Morey Machinery Co., Inc.*

For more data circle No. 26 on postcard, p. 97.

### Batching scale

Measuring pour-off is possible with a new batching scale which has a reverse reading dial. When a full container is lifted and the pointer takes position, the operator resets the dial so that 0 coincides with the pointer. As contents are poured off, the pointer retreats, registering directly the amount of decreased weight. No subtraction or computation is necessary. Dial can be reset to 0 for full 360°. Scales are available in 500 and 1000-lb models with 12-in. dials. *Hydroway Scales, Inc.*

For more data circle No. 27 on postcard, p. 97.

### Soluble oil

Shear-Speed soluble oil has been developed for use as a coolant-lubricant on practically all types of metal cutting, grinding and forming operations. Its versatility is attributed to the multi-viscosity blend which enables it to handle the maximum range of speeds, feeds and materials. No special mixing procedure is required. Emulsification is rapid with even hardest waters in any proportion. *Michigan Tool Co.*

For more data circle No. 28 on postcard, p. 97.

### Box draw furnace

An electric box draw tempering furnace is designed for applications requiring no protective atmosphere. The furnace is used for batch drawing or tempering high volume work that can be handled on trays. Maximum operating temperature is 1400°F and automatic temperature control accurately regulates any set heat within this range. A high velocity centrifugal fan provides uniform air circulation over the heating elements and around the charge. Plug-in type furnace door pivots and swings during opening and closing which minimizes heat losses. Furnace is available in six sizes: 15x24x12 in. to 42x72x30 in. *Westinghouse Electric Corp.*

For more data circle No. 29 on postcard, p. 97.

### Two lift trucks

Compactness, durability and maneuverability are features of two fork lift trucks. They are powered by heavy duty, water-cooled industrial engines and mounted on cushion-type tires. Safety, serviceability, operator comfort and ease of operation are built in. Both have sharp turning radius of 75 in. and 30 in. of free lift on the standard



9 ft uprights. The YC-40 has 4000-lb capacity at 24-in. load centers. It can operate with speed and efficiency inside box cars and in crowded quarters. The truck will climb a 20 pct grade loaded or empty. The UC-30 is basically the same truck, but with 600 lb less counter-weight and a capacity of 3000 lb at 24 in. load centers. Overall length is 74 3/8 in. and it will climb a 24 pct grade loaded or empty. *Hyster Co.*

For more data circle No. 30 on postcard, p. 97.

Turn Page



**HANDLE IT**

**"THRU-THE-AIR"**

**with P&H ZIP-LIFT**

**AT STILL  
LOWER COST!**

**Now Have These Advantages**

#### Wire Rope Hoisting!

No troublesome chains, no hidden weaknesses, no dangling loops to tangle or get in the way. Free, easy handling and wider range of side pull with wire rope hoisting.

#### 25% Overload Capacity!

This extra safety factor reveals more fine P&H engineering — and overload margin up to one-fourth above rated capacity during intermittent usage.

#### Extra Quality Features!

Double brakes for greater safety — Fully enclosed construction — Lasting drive mechanism — Mechanism operating in oil for longer life — Improved easy-working load block.

Call your P&H Dealer

**P&H** HOIST DIVISION

**HARNISCHFEGER  
CORPORATION**

Milwaukee 46, Wisconsin





"He never was much for letter-writing when he was in college. But he must know how anxious Mother and I are . . . now that he's off in Korea. Haven't heard from him in six weeks. Of course, they say 'no news is good news' . . . but I wonder. Maybe he can't write . . . because . . . maybe he's in a hospital somewhere. And maybe he needs blood. I don't know . . . but

I'm not taking any chances. That's why I'm giving blood."

★ ★ ★

Yes, all kinds of people give blood—for all kinds of reasons. But whatever *your* reason, this you can be sure of: Whether your blood goes to a combat area, a local hospital, or for Civil Defense needs—this priceless, painless gift will some day save an American life!

**Give Blood Now**  
**CALL YOUR RED CROSS TODAY!**  
 NATIONAL BLOOD PROGRAM



### Business Executives!

### ✓ Check These Questions!

If you can answer "yes" to most of them, you—and your company—are doing a needed job for the National Blood Program.

- ☐ Have you given your employees time off to make blood donations?
- ☐ Has your company given any recognition to donors?
- ☐ Do you have a Blood Donor Honor Roll in your company?
- ☐ Have you arranged to have a Blood-mobile make regular visits?
- ☐ Has your management endorsed the local Blood Donor Program?
- ☐ Have you informed employees of your company's plan of co-operation?
- ☐ Was information given through Plant Bulletin or House Magazine?
- ☐ Have you conducted a Donor Pledge Campaign in your company?
- ☐ Have you set up a list of volunteers so that efficient plans can be made for scheduling donors?

Remember, as long as a *single* pint of blood may mean the difference between life and death for any American . . . the need for blood is *urgent*!

# How TIMKEN® bearings help keep production costs low on a 4-high mill

**F**EWER time-outs for repair and maintenance mean lower production costs. That's why the work roll, feed reel, tension reel and pinions of this Mesta 4-high tandem cold reduction mill—now in operation at Allegheny Ludlum's West Leechburg plant—are mounted on Timken® tapered roller bearings.

Timken bearings' tapered construction takes all radial and thrust

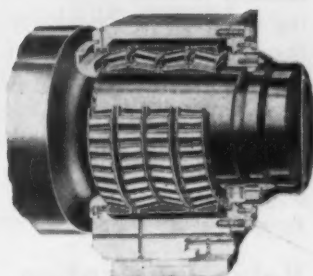
loads in *any* combination. Line contact between rollers and races gives Timken bearings extra load-carrying capacity.

The true rolling motion and extremely smooth surface finish of Timken bearings practically eliminate friction. Shafts and housings are held concentric, closures made more effective. Lubricant stays in —dirt and moisture stay out.

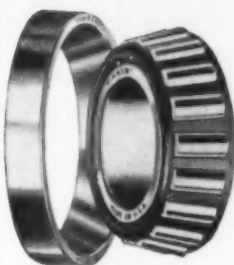
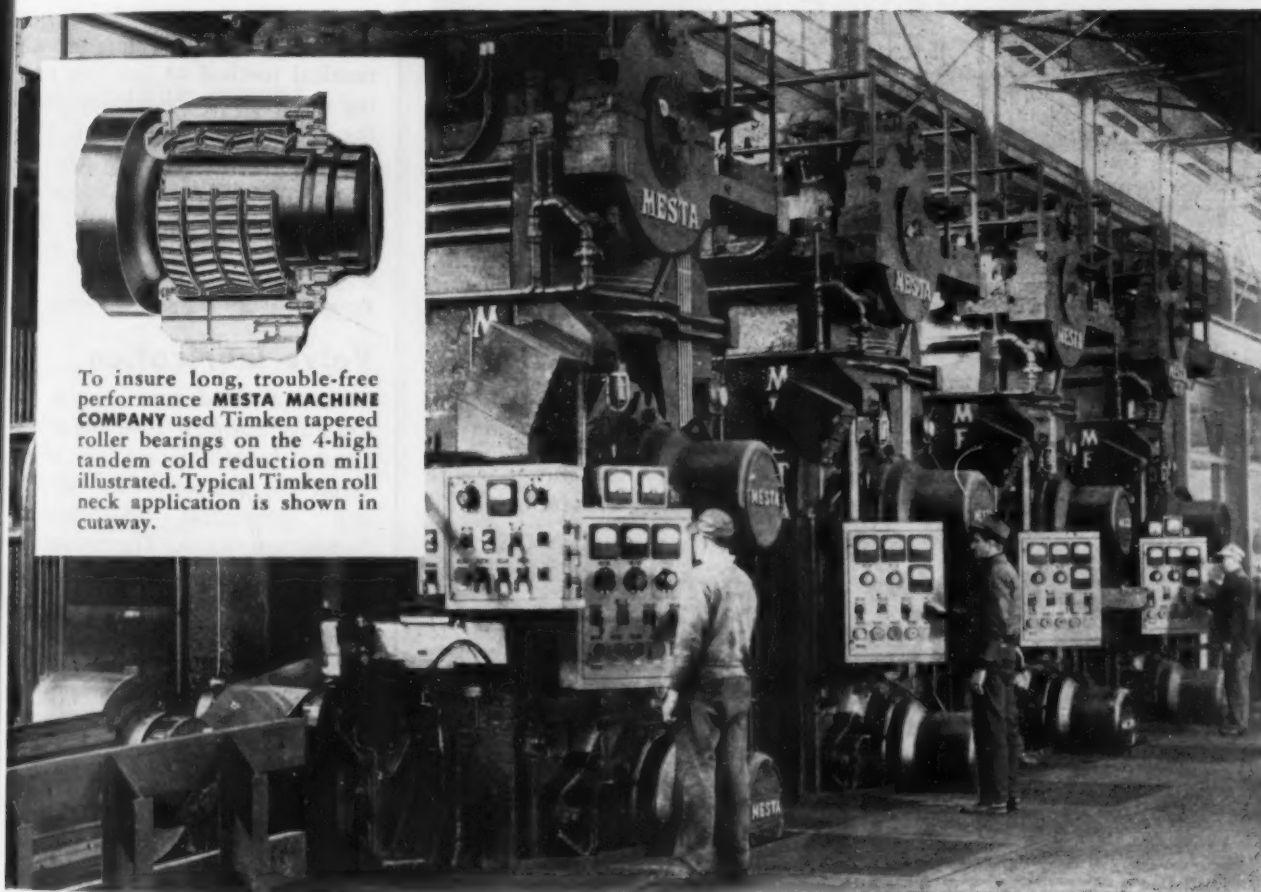
Years of research and development by the Timken Company have resulted in many improvements in roll neck bearing design and performance. For more information about Timken roller bearing applications, write The Timken Roller Bearing Company, Canton 6, Ohio. Cable address: "TIMROSCO".



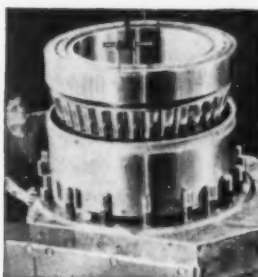
This symbol on a product means its bearings are the best.



To insure long, trouble-free performance **MESTA MACHINE COMPANY** used Timken tapered roller bearings on the 4-high tandem cold reduction mill illustrated. Typical Timken roll neck application is shown in cutaway.



**TIMKEN**  
TRADE MARK REG. U. S. PAT. OFF.  
**TAPERED ROLLER BEARINGS**



## ROLL NECK BEARING ENGINEERING SERVICE

Our field and service engineers have had years of experience with problems of roll neck bearing design and operation. They'll help you select bearings and design mountings. The Timken Roller Bearing Company is the acknowledged leader in: 1. advanced design; 2. precision manufacture; 3. rigid quality control; 4. special analysis Timken steels.

NOT JUST A BALL — NOT JUST A ROLLER — THE TIMKEN TAPERED ROLLER — BEARING TAKES RADIAL AND THRUST — LOADS OR ANY COMBINATION

May 28, 1953

111

**ACCO**  
products

featuring  
**DUALOC\***

**With these Parts**  
**YOU**  
**can assemble**  
**ACCO Registered**  
**Wire Rope Slings**  
**for 85% of your**  
**lifting requirements**

\*Trade Mark. Patent No. 2463199.  
DUALOC means dual lock. Two steel collars  
securely swaged around the ending double your  
security. Don't distort rope. Give full rope  
strength. Warranted by ACCO.

• Now you can buy ACCO Registered standard stock parts from which you can make infinite combinations of wire rope slings. If a new lifting job develops, you most likely can handle it with a different hook-up of the same standard ACCO Registered parts you use for regular lifts. But if you should need longer legs, or heavier legs, that's no problem either because everything you need is . . .

### Stocked by Distributors

• ACCO Registered Wire Rope Slings and Fittings are stocked by ACCO Sling distributors. That means you can get quick service if you need additional parts, or if some part should become damaged. In case of damage, you don't send a "special" sling back for repairs. (You know how long that takes.) You just order a replacement part from your distributor who delivers promptly.

ACCO offers you a complete line of links, safety shackles, and hooks. These items are all *Registered* and *Warranted* to have the same strength and dependability as the slings they are to be used with.

**Find Out Now** what you can do with  
ACCO Registered Wire Rope Slings. See your  
ACCO Sling distributor or write our  
Wilkes-Barre, Pa., office for literature.

**ACCO**



WIRE ROPE SLING DEPARTMENT  
AMERICAN CHAIN & CABLE

Wilkes-Barre, Pa., Chicago, Denver, Houston, Los Angeles,  
New York, Odessa, Tex., Philadelphia, Pittsburgh,  
San Francisco, Bridgeport, Conn.

**ACCO**  
**Registered**  
**Wire Rope**  
**Slings**

## New Equipment

Continued



### Die lifting tool

A Northrop-developed lifting tool designed for handling heavy forming dies provides a safe and economical method of handling forming dies during the melting process for re-use of the die metal. These special lifting tools are adaptable to other industries outside of the aircraft field, particularly forge shops and foundries. *R. H. Froom & Co.*

For more data circle No. 36 on postcard, p. 97.

### Valve lubrication

Two new lubricant tubes, a flat-top gun lubricant tube and a long-spouted bulk lubricant tube are offered for simpler, more effective and economical lubrication of Nordstrom valves. The flat-top tube simplifies loading lube-guns. With the long-spouted tube, a valve lube chamber can be filled easier as the spout gets further down into the valve shank. Eight types of lubricants are available in the new tubes. *Rockwell Mfg. Co.*

For more data circle No. 37 on postcard, p. 97.

### Super plastic glove

Extra long wear and tremendous wet grip are characteristics of a new coating on heavy duty work gloves. Durox, the coating, is produced by impregnating Edmont's regular plastic coating with a special compound. The result is a tough-tempered, long wearing coating that looks and feels like leather. Four styles are available in the new Grappler line: fully coated knitwrist and gauntlet, palm coated knitwrist and safety cuff. *Edmont Mfg. Co.*

For more data circle No. 38 on postcard, p. 97.



## Welding head shield

Feature of a new arc welding head shield built for operator comfort is a permanently pliable head band made of plastic. The band fits the head in the same way a hat does, giving a firm but comfortable fit throughout the day. It adjusts for both around and over the head, and can be put on with one hand. Shield proper is made with one piece molded fiber construction which results in light weight and strength. Wide deep clearance around the head permits free circulation of air. Adjustable stops limit the drop of the helmet to any point desired by the welder. *Lincoln Electric Co.*

For more data circle No. 39 on postcard, p. 97.

## Rustproofing agent

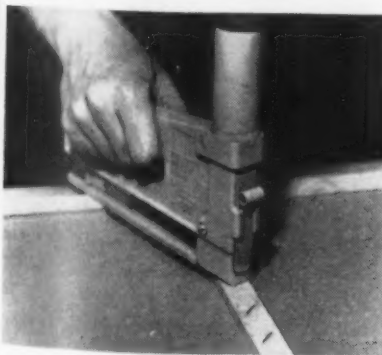
Enthone compound NR-31 prevents rusting of steel, cast iron and other iron alloys during storage. The product is a mildly alkaline, water-soluble material used in a concentration of 1 oz per gal. It leaves almost no visible film on the steel. Washing with water readily removes the product. Available in 100 and 300 lb drums. *Enthone, Inc.*

For more data circle No. 40 on postcard, p. 97.

## Air tacker

Fast-loading, fast-shooting air-driven tacker with bumper-type trip drives 200 staples per min. Speed is the result of a simplified direct drive. Bumper trip features an advanced cylinder principle to distribute 40 to 80 lb air pressures evenly for swift and fool-proof driving. Tacker loads a double bar of staples in variety of metals and finishes, from 5/32 to 13/16 in. long. *Heller Co.*

For more data circle No. 41 on postcard, p. 97.



Turn Page



## Here's How You Can Handle Steel Plates

• These pictures show only two applications of an AMERICAN 125 Endweldur alloy ACCO Registered Sling Chain with ACCO series 80 Sling Hooks. The 2 legs are long enough for use with various length plates. They can also be used in a double-basket hitch for lifting two or more plates together.

The big advantage in using this AMERICAN Chain is in the small diameter, light weight, and great strength of the tough alloy chain, and in the short links which make the chain so flexible and easy to rig. See it in the right hand picture above.

Inside the plant this same sling chain is used in a wide variety of lifts on castings, housings, and finished machines. It has become sort of a "jack-of-all-trades."

AMERICAN makes sling chains for every use with ACCO grab, sling, foundry, and special hooks. Note (above) the two ACCO Registered Sling Chains on the plate grabs. The ACCO Sling Chain Catalog gives you full information on America's finest chain slings—AMERICAN.

Write to our York, Pa., office today  
for Catalog DH-314

**ACCO**



AMERICAN CHAIN DIVISION  
AMERICAN CHAIN & CABLE

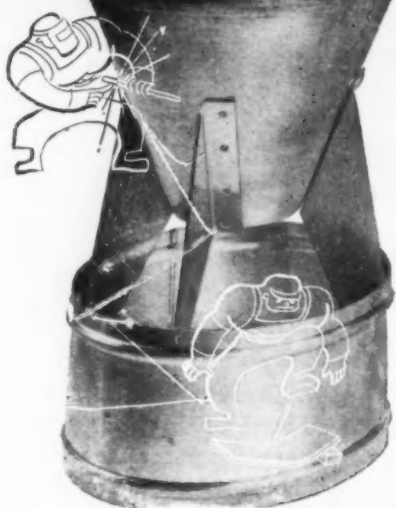
York, Pa., Atlanta, Chicago, Denver, Detroit, Los Angeles,  
New York, Philadelphia, Pittsburgh, Portland,  
San Francisco, Bridgeport, Conn.

**American  
Chain**

# CALL BRANDT!



FOR **FORMINGS  
STAMPINGS  
WELDMENTS**

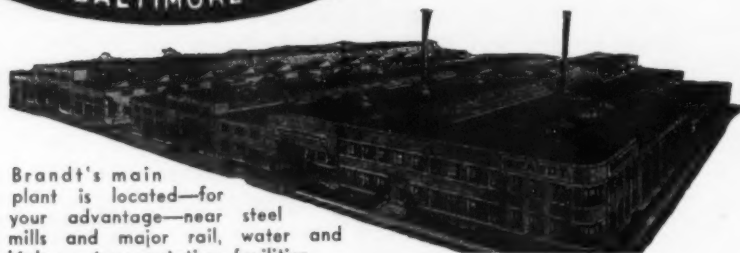


A wide variety of industries and government agencies call on Brandt for the

## MASS PRODUCTION

of formings, stampings, weldments and completely fabricated assemblies. Brandt specializes in the relief of production headaches!

**BRANDT**  
BALTIMORE



Brandt's main plant is located—for your advantage—near steel mills and major rail, water and highway transportation facilities.

Send for this helpful facilities folder . . . Contains the answer to many production problems.



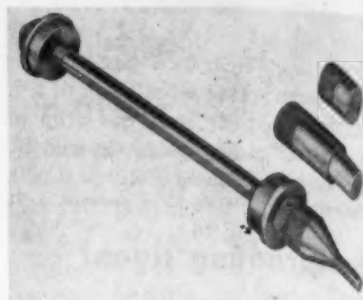
**CHARLES T. BRANDT, INC. Baltimore 30, Md.**

## —New Equipment—

Continued

### Second operation work

New collet stop makes it easier for the lathe operator to perform certain second operation work. For example, shoulder lengths can be held exactly the same, as the stop is held immovable in the lathe spindle regardless whether the collet has an indeterminate endwise loca-



tion or not. Stop need not be removed from collet, or collet from lathe for any adjustment of the stop. Collet can be used with or without the stop. *Wade Tool Co.*

For more data circle No. 42 on postcard, p. 97.

### New pipe insulation

Ultrafine pipe insulation is composed of extremely fine, blown glass fibers bonded with a phenolic resin and molded into one-piece sections. It is available in 6-ft lengths in a variety of sizes and thicknesses, for use as a pipe insulation where temperatures do not exceed 350°F



or as an outside layer over a high temperature insulation. Because it is flexible and resilient, the insulation will not break, powder, crumble, bend out of shape, or deteriorate in transit, storage or on the job. It does not become soft or muddy in contact with water. *Gustin-Bacon Mfg. Co.*

For more data circle No. 43 on postcard, p. 97.

# The Iron Age

## SALUTES

*John H. Vohr*

Skilled in steelmaking from the ground up, he's set new tonnage records at the giant Gary Works.



THE world's largest steel mill cracked all records this year with an ingot rate that dwarfed past performances. Running the show, and a key figure in the production, was John Vohr, general superintendent of U. S. Steel's Gary Works.

John has never been one to duck heavy responsibility. In 1919, his parents' death made him responsible for two younger children. John, just out of the Army Air Force, dusted off his Cornell engineering degree, "took the Pittsburgh telephone directory and got off letters to every industrial firm I could find."

When the smoke had cleared John had moved with his young wife to American Sheet & Tin Plate Co.'s Farrell, Pa., Works as a field engineer. He later served tours of duty with Youngstown Sheet & Tube, Granite City, Inland, and U. S. Steel. By 1932 he was a recognized authority on hot and cold rolled strip mill operations.

John's membership in the Assn. of Iron & Steel Engineers, American Institute of Mining & Metallurgical Engineers, American Iron and Steel Institute and Blast Furnace & Coke Assn. testify to his wide professional interests and knowledge.

Gary Works has been in the midst of a huge expansion and modernization program since John took over in 1949. But the plant has had the best safety record in its history during that time.

John and Mrs. Vohr now live in Gary, boast of two grandchildren. When he can get away from steelmaking, John is active in civic organizations, likes to fish, bowl and make a stab at golf on occasion.





**VERSATILE!**

**COMPLETELY NEW!**

**FOR SMALL WIRE!**

**TORRINGTON'S 2-STAND FLAT WIRE ROLLING MILL LINE**

**SIX-STAGE LINE**

1. Start with round wire in coils on pay-off 2. on thru 2-plane straightener 3. then thru first flattening rolls 4. and edging rolls 5. on to second flattening rolls 6. to winder where finished coils are formed

- Readily adjustable for large variety of coils and spools
- Designed for easy maintenance — rolls can be removed and replaced in minutes
- Anti-friction bearings throughout
- Internal coolant circulation in flattening rolls

**THE TORRINGTON MANUFACTURING COMPANY**  
TORRINGTON, CONNECTICUT

Western Division: Van Nuys, California • In Canada: T. M. Co., Ltd., Oakville, Ontario



DESIGNERS AND BUILDERS OF MILL MACHINERY FOR OVER SIXTY-FIVE YEARS

# The Iron Age

## INTRODUCES

J. A. Kirkpatrick, elected president, UNIVERSAL MFG. CORP., Zelienople, Pa.

William S. Snead, elected president and chairman of the board, THE EMERSON ELECTRIC MFG. CO., St. Louis.

James A. Roemer, appointed vice-president, SHARON STEEL CORP., Sharon, Pa.; and John J. Kraus also elected vice-president.

Robert L. Reeves, elected vice-president in charge of sales, J. B. Ford Div., WYANDOTTE CHEMICALS CORP., Wyandotte, Mich.

I. A. Billiar, becomes vice-president, JOHNSON FORGE & STEEL CORP., Richmond, Va.

Alvin Blue, appointed to new position of assistant to vice-president and director of sales, STONE CONTAINER CORP., Chicago; and Alan Stone, named manager, sales service.

Gerard E. Balsley, named director of industrial relations, KAISER STEEL CORP., Fontana, Calif.

James E. Ferris, appointed director of sales, NIAGARA ALKALI CO., New York; and M. F. McCombs, named manager, Chlor-Alkali sales.

Arthur N. Hill, named director of advertising and sales promotion, Plumbing Ware Div., BRIGGS MFG. CO., Detroit.

Roy W. Elliott, named director of aircraft sales, LANGLEY CORP., San Diego, Calif.

William J. Greene, appointed assistant director of metallurgical research, AIR REDUCTION CO., INC., Murray Hill, N. J.

Perry T. Egbert, elected a member of the board of directors, GENERAL STEEL CASTINGS CORP., Granite City, Ill.; and Ira Guilden, also becomes a member of the board.

John W. Young, named director of quality control, NORTH AMERICAN AVIATION, INC., Los Angeles; and Fred L. Boeke, becomes chief power plant engineer.

Frank F. Kolbe, elected to the board of directors, CLARK EQUIPMENT CO., Jackson, Mich.

Risto P. Lappala, promoted to research director of metal-plastic combinations, BJORKSTEN RESEARCH LABORATORIES, Madison, Wis.

L. Eugene Root, becomes director of development planning, LOCKHEED AIRCRAFT CORP., Burbank, Calif.

Andrew V. O'Keefe, appointed to the regional public relations staff, GENERAL MOTORS CORP., New York.

Erich H. Koeller and Radoslav T. Mijanovich, appointed research engineers, Armour Research Foundation of ILLINOIS INSTITUTE OF TECHNOLOGY, Chicago.

George H. Binns, appointed engineer, ATLANTIC CASTING & ENGINEERING CORP., Clifton, N. J.

Donald D. Brock, becomes sales engineer, Kansas City area, HONAN-CRANE CORP., Lebanon, Ind.

Raoul J. Pepin, becomes designer, SUNDBERG-FERAR, Royal Oak, Mich.

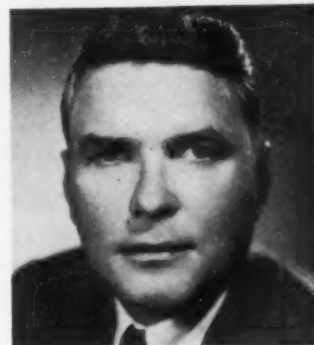
Franz F. Kaiser, becomes chief industrial engineer, FAIRBANKS, MORSE & CO., Chicago.

Morton L. Katz, appointed chief shell mold engineer, THE COOPER ALLOY FOUNDRY CO., Hillside, N. J.

Haywood C. Smith, appointed manager, Development Engineering Laboratory, AMERICAN MACHINE & FOUNDRY CO.



HERBERT P. BUETOW, elected president, Minnesota Mining & Mfg. Co., St. Paul, Minn.



STEVEN P. J. WOOD, elected president, Warner Electric Brake & Clutch Co., Beloit, Wis.



T. F. PATTON, elected assistant president and first vice-president, Republic Steel Corp., Cleveland.

## Personnel

Continued

Cyril M. Ondrey, appointed traffic manager, U. S. STEEL CORP., Chicago.

Robert G. Chelton, appointed manager of sales, ALKON PRODUCTS CORP., New York.

Herbert R. Keith, appointed manager, Contract Relations dept., INTERNATIONAL BUSINESS MACHINES CORP., New York.

Edward M. Synan, becomes manager, Dighton Aircraft Div., TOWER IRON WORKS, Providence.

Ernest E. Haupt, appointed manager, national accounts, THE B. F. GOODRICH CO., Industrial Products Sales Dept.

D. R. Strouse, appointed production manager, TUBE REDUCING CORP., Wallington, N. J.

James C. Lyke, appointed factory manager, HELICAL TUBE CORP., Grand Rapids, Mich.

A. E. Brehm, appointed service manager, TWIN COACH CO., Kent, Ohio.

John Schippers, named Chicago area manager and head of its sales services, SERVICE CASTER & TRUCK CORP., Albion, Mich.

R. P. Weyer, appointed western regional sales manager, San Francisco, CARPENTER STEEL CO., Alloy Tube Div. He succeeds Paul E. Kelly, who was transferred to Newark, N. J. office.

Norris B. McFarlane, named sales manager and assistant general manager, PITTSBURGH METALLURGICAL CO.; and Thomas C. Ford, named assistant sales manager.

J. Allan Greenland, named sales manager, San Francisco District Office, DE LAVAL TURBINE PACIFIC CO.

H. B. Sallada, appointed assistant general manager, Chance Vought Aircraft Div., UNITED AIRCRAFT CORP., Dallas.

Ralph Ramer, appointed assistant district manager, Chicago, Wickwire Spencer Steel Div., THE COLORADO FUEL & IRON CORP., New York.



ROBERT T. KELLER, elected vice-president, Chrysler Corp., Detroit.



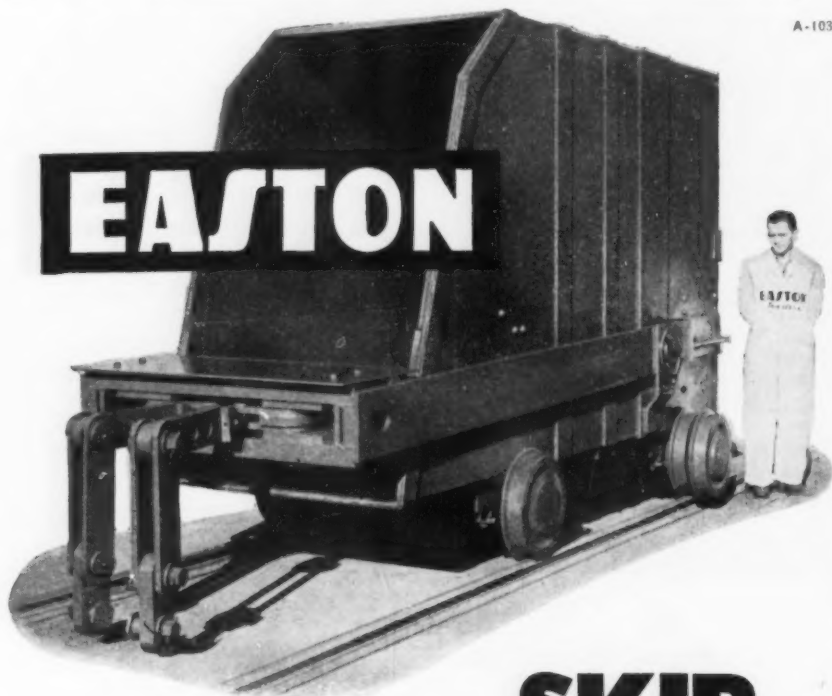
PETER P. WOJTUL, elected vice-president, Continental Can Co., Inc., New York.



G. L. DEAL, elected treasurer, The Timken Roller Bearing Co., Canton, Ohio.



H. E. MARKLEY, elected secretary, The Timken Roller Bearing Co., Canton, Ohio.



A-1037

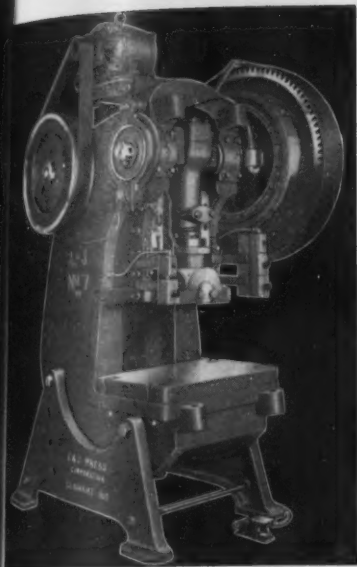
# SKIP CARS

Above: For charging blast furnace.

EASTON experience covers all types of skips for automatic dumping at the top of an incline.

EASTON CAR & CONSTRUCTION COMPANY • EASTON, PA. • NEW YORK • PHILADELPHIA • PITTSBURGH





## L & J PRESSES

**MORE PRODUCTIVITY  
AT LOWER COSTS**

The accuracy and productivity of an L & J No. 7 Press plus the advantages of an L & J Fawick Air Clutch\* give you an ideal combination for reducing costs and improving the quality of your press work.

This dependable combination permits maximum practical speeds plus greater safety and shock-free, full-power operation. Selective controls include inching, single stroke and continuous running. The L & J Air-Release Spring-Set Brake sets automatically if air pressure fails.

It will pay you to find out the advantages this 80 ton press has to offer. Also, 11 other back geared and plain flywheel models starting at 6 tons.

**Write for literature.**

\*Trouble-free because of no end thrust, no springs, no keys and no shifting parts. Pneumatic clutch element on the flywheel constricts to grip the drum on the crankshaft flange.

**L & J PRESS  
CORPORATION**  
1623 STERLING AVENUE  
ELKHART, INDIANA

### Personnel

*Continued*

Herbert Schwartz, appointed sales manager, AMERICAN SILVER CO., Flushing, N. Y.

J. A. Hague appointed assistant general manager of sales, PITTSBURGH STEEL CO., Pittsburgh; and E. C. Van Syckle, named manager, Rod and Manufacturers Wire Sales.

Hubert M. Goldman, appointed assistant to the sales manager and technical engineer, ENTHONE, INC., New Haven, Conn.; Francis A. Schneiders, promoted to technical service manager; and Lawrence J. Durney, Jr. and Edward F. Foley, become research chemists.

E. B. Gates, becomes assistant to district manager, DE WALT INC., Lancaster, Pa.

Charles C. Wardell, named advertising manager, HYATT BEARINGS DIV., of General Motors Corp.

George L. Anderson, appointed assistant to the general purchasing agent, THE AMERICAN BRAKE SHOE CO., New York.

William R. Jenkins, appointed sales representative, Youngstown district, THE UNITED ENGINEERING & FOUNDRY CO., Pittsburgh, Pa.

George J. Bruyn, appointed administrative assistant to the general sales manager, HOOKER ELECTRO-CHEMICAL CO.

C. R. Deverall, appointed exclusive sales and service representative, Fort Wayne and Indianapolis area, LEWIS-SHEPARD PRODUCTS, INC.

R. K. Martin, appointed sales representative for western Michigan, HANSON - VAN WINKLE - MUNNING CO.

Charles J. Rittinger, appointed general manager, INDUSTRIAL CASTINGS CO., Detroit.

John B. Florance, appointed chief engineer, JAMES H. KNAPP CO.

### OBITUARIES

William M. Whitney, 90, president and treasurer, Baxter D. Whitney & Son, Inc., Winchendon, Mass.

Stewart A. Millar, 27, new products development engineer, Detrex Corp., Detroit, recently.



**... or Released  
in an Instant**



CLINCH TYPE



INSTRUMENT MOUNTING



SPLINE TYPE



THIN TYPE



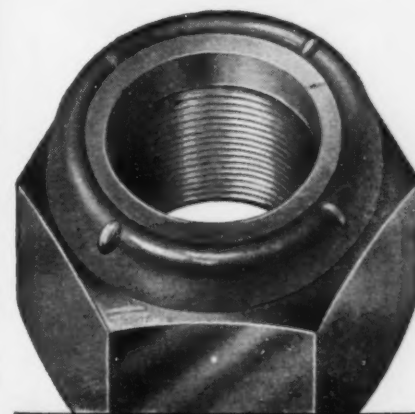
STANDARD

Faster assembly . . . no more failures of fasteners. GREER STOP NUTS hold firm against jolts, shocks, shimmy, wobbles . . . any vibration, any kind.

Bolt threads are gripped tightly . . . these famous nuts never work loose. Yet an ordinary hand wrench gives instant release. The tough, built-in GREERCOID collar does it . . . and seals against fluid leakage, too!

Study your fastener problem. Over 3000 types and sizes. Consult GREER. Proved on thousands of products. Meets gov't and military specifications.

**Write  
GREER STOP NUT CO.**  
2620 Flournoy, Chicago 12, Ill.



**GREER  
Stop Nuts**

# When correct design and dependable performance are especially important

**you can depend on Chicago Rawhide  
for reliable solutions to your  
mechanical sealing and protection  
problems**



## **SIRVENE**

**SCIENTIFICALLY  
COMPOUNDED  
ELASTOMERS**

(Synthetic Rubber)

When you need an oil-resistant, pliable part with an exact degree of flexibility, hardness, resistance to extreme temperatures, fluids, gases, abrasion and wear . . . whether it be an intricately designed diaphragm or boot . . . or a simple but critical packing or gasket . . . Sirvene will serve you dependably.

Write for  
"Engineering with Sirvene"



## **SIRVIS**

**MECHANICAL  
LEATHER PRODUCTS**

Actual tests prove Sirvis packings require less replacement than any other type. Made in a complete line of cup, flange, U and V types from specially treated and tanned steerhide. Available in special designs, scientifically engineered to solve unusual situations.

Write for  
Sirvis Mechanical Leather Catalog



## **C/R Oil Seals**

The "Perfect" answer to fluid retention, moisture and foreign matter exclusion, and similar mechanism protection problems. Used more than any similar device in motor vehicles, industrial machines, farm implements, and road machinery. Stocked in over 1800 sizes, covering 16 different types.

Write for  
"Engineering with C/R Oil Seals"



**CHICAGO RAWHIDE MANUFACTURING COMPANY**

1229 Elston Avenue, Chicago 22, Illinois

Representatives in these Principal Cities

Boston • New York • Syracuse • Philadelphia • Pittsburgh • Cincinnati • Cleveland  
Detroit • Peoria • Minneapolis • Kansas City • Houston • Los Angeles • San Francisco

Some cold facts—

# Low-temperature treatments improve PRODUCTS and PROCESSES



COLD TREATING of tools and precision parts is done quickly, simply and cleanly. White frost on parts at right of refrigerator is due to condensation.



By **W. H. Miller**  
Chief Metallurgist  
Bowser Technical Refrigeration  
Terryville, Conn.

♦ Cold treating of metal products aids fabrication in many ways: Dimensional stabilization of precision parts, improved strength and accuracy of tools and machine parts . . . Better machinability and improved metallurgical properties are other advantages of low temperature treatment.

♦ Expansion fitting by refrigeration is a clean process in which there is no distortion, discoloration or reduction of hardness . . . Temperatures down to  $-150^{\circ}\text{F}$  are usually sufficient for good results . . . Short-time cycles speed processing.

♦ **LOW TEMPERATURE TREATMENT** of metals in recent years has been used by metallurgists, heat treaters and metal fabricating firms to improve their products and processes. Low-temperature treatment is usually done in the range of  $-125^{\circ}$  to  $-150^{\circ}\text{F}$ . Except in special cases, a temperature lower than  $-150^{\circ}\text{F}$  is not required for best results.

Refrigeration of hardened tool steels below  $-150^{\circ}\text{F}$  is costly because of the greater complexity of the system involved. Also, tools or parts treated at  $-200^{\circ}\text{F}$  may show only a 3 to 5-pct improvement over those treated at  $-140^{\circ}$



**Better control of critical dimensions, less distortion, added wear resistance are advantages of low temperature treatment . . .**

or -150°F. The main application for cold treatment at -200°F would be for shrink-fitting. Cold treatment has many uses, some of which are listed in the box.

According to a market survey of 1000 large manufacturing plants in the automotive, aircraft, marine, railway heavy equipment, ordnance and hardware industries, 90.1 pct use heat treating in their operations. Only 16.2 pct use cold treating to supplement or improve their heat-treating processes. Yet, this percentage would be much higher, perhaps 50 pct, if manufacturers realized its advantages.

#### Stops block "growth"

Among the cold-treating applications is the dimensional stabilization of gage blocks. Many gage manufacturers use cycles up to 100 hr to complete dimensional stabilization. This is not only costly but unnecessary.

Stabilizing treatment is intended to eliminate all retained austenite from hardened steel gage blocks before final finishing. Thus, all expected growth due to transformation of retained austenite to martensite takes place before gages are ground and lapped to a final and permanent size. When this occurs, gradual growth takes place in amounts sufficient to render precision blocks inaccurate and unusable.

#### Gages hardened throughout

The following cycle was used successfully on 4-in. gage blocks with a guaranteed accuracy of 3 millionths of an inch for the life of the gages. The steel used was a high-carbon gage steel of selected quality having deep-hardening characteristics so that the gages hardened throughout.

1. After heating to 1450°F for hardening, water quench down to 150°F.
2. Refrigerate at once to -145°F, holding 1 hr at this temperature.
3. Transfer to tempering furnace while still

cold and heat to 250° to 275°F, holding 1 hr at elevated temperature.

4. Repeat steps 2 and 3 twice.

This simple cycle shortened the stabilizing treatment for one manufacturer from 96 hr to 8½ hr. No room-temperature defrosting period was used and parts were rapidly transferred from low to high-temperature chamber and vice versa. Similar short-time cycles can be worked out for many other gage steels.

#### Get greater wear resistance

Time cycles can be shortened considerably by switching from dry ice, which usually gives a temperature of about -90°F, to mechanical refrigeration systems capable of -150°F or lower. Although dry ice has a temperature of -110°F, a bath or chamber cooled with it seldom gets below -90°F due to losses by radiation. Lower temperatures improve stabilizing results and shorten required time.

To increase hardness, eliminate grinding cracks and increase wear resistance of carburized steels, a single treatment of -125° to -150°F for 30 min is sufficient. This should be followed by tempering at 350°F for 1 hr.

Parts made from carburized alloy gear steels retain considerable austenite in the case after hardening and tempering. By subzero treatment, the austenite is transformed and much greater case hardness and wear resistance is attained. This treatment applies mainly to parts quenched directly from the pot or furnace.

#### Freeze cuts distortion

Some of the carburizing steels respond better than others and some may be tempered before cold treatment without austenite stabilization. Steels such as SAE 4320, 3310, 8620, 2512 and 4820 are benefited substantially by the refrigeration treatment and case hardness increases from Rc 3 to 10 have been obtained. Cold treatment should be followed by a tempering operation at about 350°F.

Use of subzero temperatures permits minimizing distortion and reduces the danger of developing grinding cracks that can occur when hard materials containing austenite are ground. Austenite retained in a surface being ground will transform to martensite by heat and pressure of the grinding operation. Two factors then encourage grinding cracks: the thermal shock and the volume change caused by transformation which introduces high stresses in the surface metal.

In plastic-molding die steels, carbon is usually kept low to retain the annealed hardness at a

TABLE I

#### COLD TREATMENT HARDENS TOOLS

Tool	Type of Steel	Hardness, Rc	
		Before Treating	After Treating
Thread Roller	SAE 3135	53	56
Circular Form Tools, Hollow	High-Speed, 18-4-1	64	68
Mill Blades	High-Speed, 18-4-1	63	65
Milling Cutters	High-Speed, M-2	61	65

minimum for good hobbability. The tendency is to add more alloying elements to these steels for high core strength. But after carburizing, the dies retain large amounts of austenite because of the added alloying elements and high carbon in the case.

The remedy for this is a treatment at  $-150^{\circ}\text{F}$  for 30 min at temperature followed by the tempering operation. This restores high hardness and puts the die in condition for long service—an important consideration in most plastic-molding applications, especially when the die is extremely costly. Reduction of die wear in turn reduces flash, rejected parts, downtime and the diemaker's time.

### Treatment varies with analysis

Many cycles of heat and cold can be used to increase tool life and improve accuracy. An increase as much as 500 pct above normal can be achieved by proper use of low-temperature treatments. The exact treatment depends on the steel analysis and prior thermal history. Some typical examples of proper treatment are: For 18-4-1 high-speed steel:

1. Preheat to  $1550^{\circ}\text{F}$ , transfer to high heat of  $2350^{\circ}\text{F}$  and follow by oil-quenching.
2. Refrigerate to  $-150^{\circ}\text{F}$ , hold only 15 min.
3. Temper at  $1025^{\circ}$  to  $1050^{\circ}\text{F}$ , air cool.
4. Refrigerate to  $-150^{\circ}\text{F}$ , hold 15 min.
5. Temper at  $600^{\circ}\text{F}$  for stress relief only.

Resulting hardness should be Rc 65 to 67. This treatment can be used for other types of high-speed steels but preheating and hardening temperatures must be adjusted according to chemical analysis or recommendation of the steel manufacturer.

### Extend cutting tool life

For high-carbon, high-chromium tool steels, such as 1.5-pct C, 12-pct Cr type, the following cycle has been successful:

1. Harden from  $1850^{\circ}\text{F}$ , air quench.
2. Refrigerate to  $-150^{\circ}\text{F}$  for 15 min at temperature:

3. Temper at  $425^{\circ}\text{F}$ .

Resulting hardness: Rc 66 to 67.

The same treatment applies to the 1-pct C, 5-pct Cr type of tool steel except that the hardening should be done at  $1750^{\circ}\text{F}$  and tempering at  $375^{\circ}$  to  $400^{\circ}\text{F}$ .

The time at low temperature is quite short and expected final hardness is considerably above that normally expected. Experiments proved that 3 min at the low temperature are sufficient, but 15 min are recommended for safety. The saving in time is substantial. The normal time, previously requiring hours, can now be reduced to minutes and production capacity increased accordingly.

Even stock tools previously heat treated can be improved to the extent that their useful

TABLE II

### SHRINKAGE IN 2-IN. DIAM CYLINDERS

Material	Composition or Grade	Hardness	Shrinkage, In. Cooled from $70^{\circ}\text{F}$ to		
			$-110^{\circ}\text{F}$	$-160^{\circ}\text{F}$	$-320^{\circ}\text{F}$
High-Speed Steel	18-4-1	63 Rc	0.0022	0.0028	0.0039
High-Speed Steel	6-5-4-2	64 Rc	0.0021	0.0026	0.0040
High-Speed Steel	18-4-2 + 9 Co	65 Rc	0.0020	0.0026	0.0035
High-Speed Steel	5-4-4-4	64 Rc	0.0025	0.0032	0.0045
High-Speed Steel	4-5-4-1 + 12 Co	67 Rc	0.0020	0.0023	0.0031
Tool Steel	1.10 C	66 Rc	0.0024	0.0026	0.0039
Tool Steel	0.90 C, 1.20 Mn, 0.50 Cr, 0.50 W	63 Rc	0.0023	0.0027	0.0040
Tool Steel	0.50 C, 0.90 Cr, 1.25 W	66 Rc	0.0024	0.0029	0.0036
Tool Steel	2.25 C, 12.00 Cr, 1.00 Mo	64 Rc	0.0025	0.0027	0.0040
Cr-V Steel	SAE 8150	58 Rc	0.0026	0.0029	0.0044
Machine Steel	SAE 1020	88 Rb	0.0023	0.0026	0.0044
Cast Iron		85 Rb	0.0022	0.0025	0.0037
Stainless Steel	18-8	62 Rb	0.0033	0.0041	0.0057
Brass	66-34	60 Rb	0.0041	0.0046	0.0072
Copper		82 Ff	0.0036	0.0038	0.0062
Bronze	SAE 880	78 Ff	0.0038	0.0043	0.0065
Aluminum	25	64 Rb	0.0043	0.0056	0.0082
Aluminum	24ST	98 Rb	0.0031	0.0055	0.0080
Magnesium	M	79 Rb	0.0051	0.0083	0.0094
Invar	"36"	78 Rb	0.0003	0.0005	0.0011
Cast Alloy	20.00 Co, 8.00 W, 7.00 Mo, 5.00 Cr, 2.00 V, 6.70 C, 0.70 B, Bal. Fe	69 Rc	0.0018	0.0022	0.0029
Cast Alloy	44.00 Co, 17.00 W, 33.00 Cr, 2.25 C, 2.00 Fe	56 Rc	0.0020	0.0025	0.0035
Carbonyl	44A	91 Ra	0.0003	0.0006	0.0015

cutting life is substantially improved. Table I shows the hardness increase in stock tools refrigerated to  $-150^{\circ}\text{F}$ , held 2 hr at temperature, then tempered at only  $300^{\circ}\text{F}$ . Previous thermal history was unknown. These tools gave more pieces per grind, eliminated machine downtime and increased production.

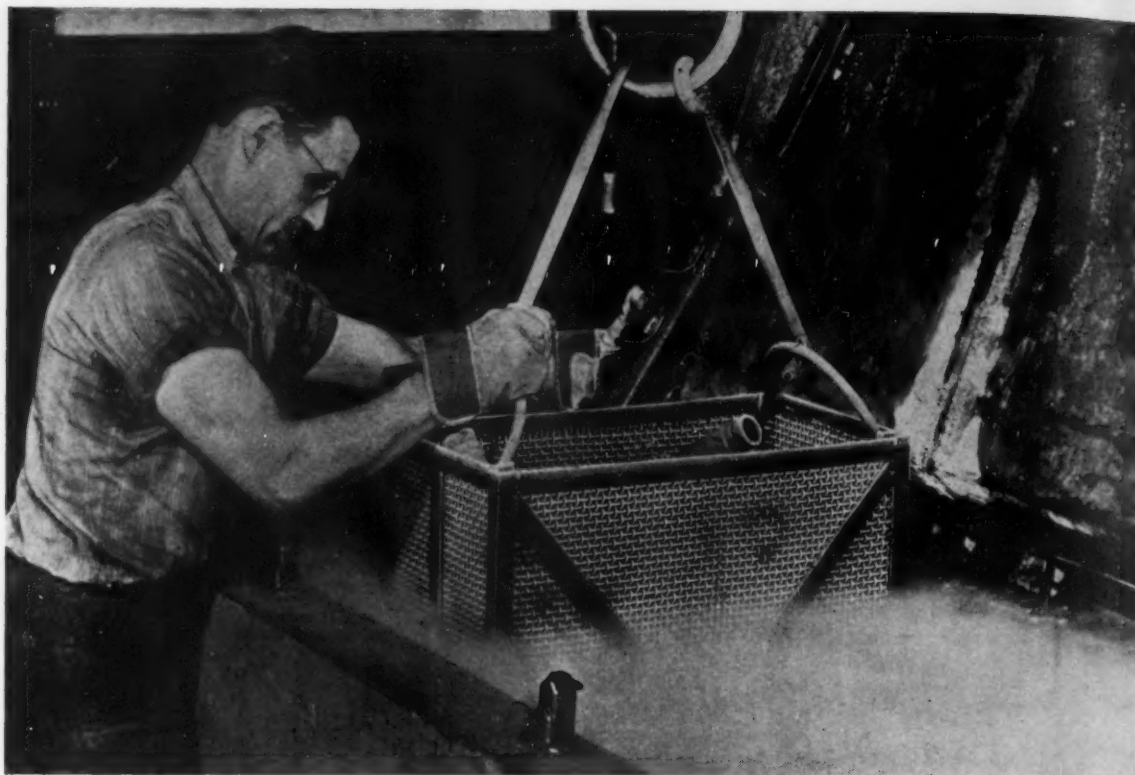
Similar treatments are used to improve magnetic properties and induce rapid seasoning. To improve magnetic strength, nonmagnetic austenite is converted to magnetic martensite by subjecting magnets to  $-150^{\circ}\text{F}$  for 2 hr followed by tempering at  $350^{\circ}\text{F}$ .

### Salvage undersize dies

For rapid seasoning of cast-iron engine blocks, heads and parts demanding freedom from age-cracking or growth, parts should be chilled to  $-125^{\circ}$  to  $-150^{\circ}\text{F}$  for 1 hr at temperature, followed by heating to  $400^{\circ}$  to  $700^{\circ}\text{F}$ , depending on the type of cast iron. This cycle is repeated in very critical applications. Parts are then machined and ground to final and permanent size.

One novel application is that in which expensive out-of-size dies may be salvaged or saved by low-temperature treatment. If a die is accidentally made undersize, or if it shrinks during heat treatment, it may be caused to grow by a low-temperature soak for 1 to 4 hr at  $-125^{\circ}$  to  $-150^{\circ}\text{F}$ , followed by tempering at  $350^{\circ}\text{F}$ . This treatment is particularly useful on close tolerance work.

Storage of aluminum alloys and prevention of age hardening has recently become much



MACHINE PARTS are cold treated to increase hardness and improve wear resistance. Parts are handled in wire

baskets to speed processing. Low temperature treatment is usually done in the  $-125^{\circ}$  to  $-150^{\circ}$  F range.

more prominent. Solution-treated rivets had been stored at temperatures ranging from about  $+20^{\circ}$  to  $-40^{\circ}$  F to prevent age hardening at room temperature prior to heading. Recent developments have led to the storage of forgings, castings and sheet-metal blanks for aircraft, etc., in the solution-treated or soft condition. The soft state being preserved permits subsequent operations to be performed without difficulty.

Forming, stretching and straightening of aluminum alloys can be done with ease. After cold storage, products are permitted to age naturally at room temperature. This process applies only to alloys such as 17S and 24S.

The following tabulation shows the storage time before hardening process starts:

Time Permitted Before Aging Starts	Temperature of Storage
16 hr	$32^{\circ}$ F
3 days	$20^{\circ}$ F
1 week, plus	$0^{\circ}$ F
3 weeks, plus	$-20^{\circ}$ F
Indefinite	$-40^{\circ}$ F

Recent tests show that dimensional stability of cast and wrought aluminum and magnesium can be improved by low-temperature treatment. Machinability is also enhanced to the extent that better surface finishes are possible. Tearing is minimized and the tendency of warping from machining operations is eliminated.

Age-hardenable grades of aluminum and magnesium alloys benefit most by the process

of which the following is an outline:

1. Solution-treat at the time and temperature recommended for the alloy in question. Follow by water-quenching for aluminum alloys and air-quenching for magnesium alloys.
2. Age-harden at the temperature recommended for the alloy and air cool.
3. Refrigerate at  $-140^{\circ}$  F for 2 hr.
4. Bring back to room temperature.
5. Heat  $25^{\circ}$  to  $50^{\circ}$  F above the recommended aging temperature for the alloy. Hold 2 to 3 hr and air cool.
6. Repeat steps 3, 4, and 5.

By the low-temperature exposure and slight overaging, stability improves and structural changes take place during manufacture which might take place in service under similar temperature conditions. If dimensional changes such as permanent growth do occur, they can be detected and corrected during manufacture and dimensional changes in service can be prevented. This is important to makers of precision instruments and aircraft parts.

Another application of cold-treating metals to good advantage is that of expansion fitting parts and assemblies. Refrigeration has advantages over the old method of shrink-fitting where one part is heated while another is dropped into place. Heating causes discoloration, scale, distortion and handling difficulties. Also, reduced hardness alone may cause failure or unsatisfactory service of parts.



### PRESENT USES FOR COLD TREATMENT

- ¶ Dimensional stabilization of precision parts, and of aluminum and magnesium parts.
- ¶ Increases life of carburized alloy steel machine parts, cutting tools and off-the-shelf tools which have not had optimum heat treatment.
- ¶ Prevents warpage and eliminates cracks in some parts during machining.
- ¶ Improves magnetic properties of magnet steels.
- ¶ Speeds seasoning of iron castings.
- ¶ Prevents age hardening of aluminum shapes before forming.
- ¶ Eliminates need for double tempering of some high-speed steel tools.
- ¶ Improves accuracy and stability of precision machine tool parts.
- ¶ Improves strength of welded assemblies and eliminates retained austenite in welds.
- ¶ Expansion fitting and disassembly of parts.
- ¶ Salvaging out-of-size hardened dies by dimensional changes.
- ¶ Prevents waste by hardening abrasive sticks and buffing compounds.
- ¶ Improves ductility of metals for deep drawing.

### POSSIBLE USES

- ¶ Improve ductility of iron powder parts.
- ¶ Eliminate stretcher strains in deep drawing steels.

Use of low temperature to reduce the size of a part before dropping it in place and permitting it to expand to a tight, high-strength fit is a clean process in which handling difficulties are minimized. There is no distortion, discoloration or reduction in hardness. In some cases, the user has the additional benefits of dimensional stabilization and better wear resistance in hardened steel parts.

It is also possible to disassemble expansion-fitted assemblies which involve removal of internal bushings, sleeves or inserts. An internal bushing can be chilled by use of a low-temperature fluid contained in a fixture of proper shape. This fluid chills the bushing, causes it to shrink and drop out easily. This eliminates the need for presses and holding fixtures.

Table II gives some useful data on the amount of shrinkage to expect from 2-in. diam cylinders when chilled from  $+70^{\circ}$  to  $-110^{\circ}$ ,  $-160^{\circ}$ , and  $-320^{\circ}$  F. Data for 23 different materials are shown.

Cold treatment has also been carried to the metal finishing field where glue, wax and grease-base buffing and polishing compounds are refrigerated to harden the sticks, thus preventing waste when charging buffing wheels.

## NEW FILMS

*"Lessons In Grinding"* comprises a series of films which provide the metalworking industry with valuable material for a study course in grinding. The eight films present the fundamentals of grinding in a manner the inexperienced operator can understand. The films, 16-mm and in color with sound include:

*"Cutter Sharpening."* Teaches principles of tool room grinding and illustrates typical setups.

*"The Cylindrical Grinder."* Embraces fundamentals of cylindrical grinder operation with emphasis on precision.

*"The Surface Grinder."* Describes the preparation, operation and care of the surface grinder.

*"The Grinding Wheel, Its Care and Use."* Includes information on mounting, balancing, truing, dressing and safety.

*"Grinding Carbide Tools."* A new and revised film showing correct methods of grinding carbide tools.

*"The Diamond Wheel, Its Care and Use."* Shows how to get the most out of your diamond wheel investment.

*"Grinding Wheel Markings."* Clarifies grinding wheel marking symbols.

*"Grinding Wheel Safety."* Shows the most critical

factors in handling of grinding wheels and the more common causes of wheel breakage.

All films available on free loan from the Norton Co., Worcester 6, Mass.

*"Better, Faster, Cheaper With Welding"* is a color strip film with sound accompaniment showing how welding techniques can help cut production, maintenance and salvage costs. Diagrams and cartoons permit quick grasp of welding methods and procedures. Free loan. Technical Information Service, Eutectic Welding Alloys Corp., 172 St. and Northern Blvd., Flushing 58, N. Y.

*"Ransburg No. 2 Process."* Operation of the electrostatic method of painting is described in this new 25-min. 16-mm, color-sound film. Advantages of the process are illustrated with more than half the film shot on customers' production lines. A wide variety of painting applications are included. Available on request. Ransburg Electro-Coating Corp., Barth and Sanders Aves., Indianapolis 7.

*"Manufacture of Stainless Strip."* A new technical movie on steel production covers manufacture of stainless strip from melting through blooming, hot rolling, pickling and cold rolling. Available in 16 mm, sound, color, and runs for 20 min. Free loan. Syndicated Films, 1022 Forbes St., Pittsburgh 19.

**Two-way communication**

**Electronic scales**

**Pallet dispensers**

**Hydraulic power steering**

**And those brainy conveyors**



## Materials Handling



◆ THE CURIOUS came away impressed from the Fifth Annual Materials Handling Show held in Philadelphia last week. Engineers and experts were amazed by the advancements made during the two-year period since the last exhibition. Industrial leaders, who predict 1954 as the best year yet, were backed up by the interest of users in the equipment on the floor. Over 25,000 businessmen, engineers and students crowded into booths of the 350 exhibitors, proudly displaying a total of \$10 million worth of equipment.

Live shows caught the eyes of those who were able to get seats at the arenas. The less fortunate were treated to a view of the shows via TV sets apart from the exhibition areas. The exposition management took materials handling seriously and covered the six-acre show on roller skates. Buses left on 15-min schedules to and from downtown hotels, taxis were at a premium but beautiful models were in abundance.

Technical meetings consisting of workshop seminars were featured Tuesday, Wednesday and Thursday mornings, highlighted the following subjects: (1) Handling in Process, (2) Warehousing and Shipping, (3) Packaging for Improved Handling, (4) Bulk Handling. Requirements for Organization Analysis. Each seminar participant presented a problem. The seminar group then went to work on the problem to solve it. Moderators deftly steered discussion to enable everyone to participate.

Conveyors of all types were in operation. Automatic overheads, with loading and unloading devices, and interfloor elevators competed with dead and live roller conveyors, wheel roller, slat and belt conveyors of all types. The spaghetti-like totally enclosed tubular overhead conveyors demonstrated their simplicity and flexibility. Novel was the magnetic conveyor.

Stealing a leaf from Detroit were fork trucks with power steering and torque drives. The modern contours of two fork trucks employed functional design both for eye appeal and to encourage better maintenance. One company exhibited

gas, electric and propane-powered equipment. The largest lift truck had a capacity up to 100,000 lb. Another firm used its large lift truck to hoist a spectator platform 8 ft above the show floor. Universal attachments of all types were much in evidence.

Plant layout for the first time was given some space. Three firms showed three-dimensional visual layouts. This basic but much overlooked factor of any materials handling system attracted wide interest.

Hydraulic lift platforms, adjustable and portable dockboards, automatic lever electronic and hydraulic scales for weighing in transit, demonstrated their cost cutting advantages. Lifting magnet, weighing only 85 lb, attracted the owners of small plants. Capable of lifting 2500 lb this inexpensive unit can be plugged into a 110 or 220 v line.

The less spectacular but equally important packaging and marking aspects of the industry came in for a good share of attention. Automatic marking, stapling, and labelling machines provided visitors with many cost cutting, and fast methods of preparing their products for shipment.

Working models played a large part in demonstrating the feasibility of modern methods. An exact replica of an overhead magnet yard crane installation at a large steel mill was operated from a full scale operator's pulpit. A completely palletized warehouse using a Stak-Rak crane which only utilizes two feet more aisle space than the pallet itself was run from a remote control board. A conveyor installation in miniature was laid out for an entire plant.

Palletizing, now fully accepted by American industry, received a great share of attention. The latest in wood, fibre and collapsible steel pallets were shown. In the fork truck equipment areas all types of pallet handling was demonstrated. Typical was the Pull-Pak attachment for cardboard pallets manufactured by two fork-truck producers.

## ling Show Highlights . . . .

Fork truck with no clutch or gear shift uses 30 pct less fuel. Heart of the power system is a variable-voltage generator driven by a gasoline engine. In acceleration the voltage builds up in a smooth unbroken curve pattern which is transmitted to drive motor on axle.

Pulsating panels in bins and hopper walls overcome arching and funneling and move the most stubborn bulk materials. Automatic air controls their action by alternately inflating and deflating the neoprene panels.

Catalytic cartridge fitted to any exhaust system reduces noxious fumes thrown off by the many gasoline-powered trucks at the show.

Automatic lubrication of trolley wheels delivers a measured amount of grease to both sides of track in a matter of seconds. Device requires no floor space.

Pallet maintenance costs can be cut more than 50 pct with the new automatic pallet dispenser and stacker. It's mobile, handles up to 25 pallets and can be run with air, electric or hydraulic power.

Greater efficiency in assembly and sorting was demonstrated on a magnetic conveyor line. Ball caster pallet containing a magnet rides around the stainless steel table guided by chain carrying magnets under the table.

A bicycle powered lift truck imported from England produced some laughs but also some general interest. Fork loads up to 2500 lb are raised by battery power, lateral motion is controlled via pedals.

Big sales contest between the three types of industrial scale makers was apparent in all the halls of the show.

New steel strapping can be used to strap highly finished products. Steel bands covered with a soft coat of brightly colored flock give strength, protection and eye appeal. High-gloss stoves, refrigerators and similar items will be the first users.

Hydraulic crane scale hung on any crane hook gives instant net weight to 0.02 pct accuracy. Rugged, readable and convenient it has a hand tare adjustment which moves the indicator, the dial is stationary. The unit is temperature compensated from - 70° to 150°F.

Movement of bulk materials in railroad hopper cars has been speeded by channeling air under the material through a porous fabric. The load is thus fluidized and flows freely to the unloading point.

Complete visible storage has been achieved for small parts with more storage capacity. Circular rotating trays give uniform jar weights, permit fast and accurate weight count instead of piece count.

Oil-Mist lubrication, fast growing practice for industrial machines, is taking to the air. Redesigned to operate upside down it is being tested on missiles and jet aircraft.

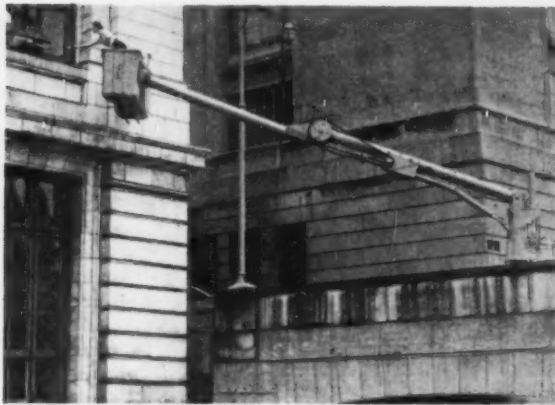
Air motor crane raises 1000-lb loads at 40 fpm and lowers safely at 100 fpm. Equipped with a 28½-lb rotary vane, unit is totally enclosed, free from dirt, fumes and heat. It meets explosion-proof requirements.

Two modernistic styled trucks attracted wide attention. Functional styling in industrial equipment is more than eye appeal. It has been proved that operators take better care of good looking machines and maintenance is always lower. Sales efforts will stress the latter.



## Materials Handling Show Highlites

Continued



**STRETCHING** its 34-ft muscles outside Convention Hall is Yale & Towne's Hydro Sky Lift. Articulated arm lifts up to 500 lb anywhere within a 26-ft radius.



**CROWDS** see and hear all about the latest equipment. Thru the TV sets spectators had a ringside seat with a move-by-move commentary coming thru earphones.

**CROWS NEST** view of the pit on the stage of the main hall. TV camera relayed these pictures to sets on the floor for those who couldn't be seated on the stage where over \$100,000 worth of equipment was shown.



**RUBBER-cushioned** under-frame for freight cars was introduced by Pullman Standard. This impact absorber is capable of reducing by one-third the conventional amounts of damage experienced with regular cars.



CRANES of all types and sizes were featured. This automatic dispatch overhead carrier, loaded and unloaded over a range of preselected cycle times.



BETTER view was afforded at Automatic Transportation Co.'s live show by an 8-ft. high lift truck platform. Modern-styled fork truck in foreground was featured.



FINGER TIP control of lift trucks can now be obtained. Towmotor's power steering eliminates 80 pct of the normal steering effort. As yet only a few large pneumatically-tired units have been so equipped.

STAPLING up to 400 cardboard cartons an hour can be handled on this semi-automatic machine. Cartons up to 24 in. wide and 44 in. high can be stapled. The machine will close mixed carton sizes without manual adjustment.



# Tin Assay Shortcut

## SPEEDS CONTROL



By C. Goldberg  
Chief Chemist  
New England Smelting Works, Inc.  
West Springfield, Mass.

♦ You can get assay control data on tin in brass or bronze faster with this shortcut method . . . It's especially useful where a fraction of a milligram error is not serious.

♦ Checked against standard methods of assaying tin in Bureau of Standards brass and bronze alloys and cutting brass alloys, the method yields close approximations to certificate values.

♦ A FASTER METHOD for determining tin content in brasses and bronzes is desirable for much control work. Such a method, suggested by Kinnunen and Merikanto,<sup>1</sup> is especially valuable where an error of a fraction of a milligram is not serious. The usual methods are time consuming<sup>2</sup> since copper must be separated from the tin prior to titration of the tin.

In the fast assay method, the sample is dissolved in a flask with concentrated hydrochloric acid and 30 pct hydrogen peroxide solution. Sodium hypophosphite or hypophosphorus acid is added to reduce copper and tin. A little mercuric chloride is added to catalyze the tin reduction<sup>3</sup> and the solution is boiled for a few minutes. A sodium bicarbonate trap is placed in the mouth of the flask and the solution cooled to 15°C. After cooling, the trap is removed, ammonium thiocyanate added to precipitate the cuprous copper as cuprous thiocyanate, and the solution is titrated with iodine solution.

After using the method for routine determina-

tions in bronzes for several months, results were found to be substantially in agreement with those recorded by the above-mentioned authors. However, use of the method for determining tin in low percentages, 1 pct of a 1.0 g sample or less is not mentioned. Questions arose as to whether or not there would be tin loss due to volatilization of the stannic chloride from the concentrated solution and the degree of accuracy to be expected when a low tin content was determined by the fast method.

All 1.0 g samples were dissolved in a 500 ml flask with 20 ml of c.p. concentrated hydrochloric acid and 15 ml of c.p. 30 pct hydrogen peroxide solution. Silicon bronze samples occasionally will not completely dissolve under those conditions and a little more peroxide must be added. All other alloys investigated dissolved quickly and completely. After solution, 2.0 g of sodium hypophosphite were added, followed by a few small crystals of c.p. mercuric chloride. The solution was brought to boiling and allowed to boil 3 min. A vertical air trap was placed in the mouth of the flask and cooled, and saturated solution of sodium bicarbonate used to fill the trap.

After a moment the assembly was transferred to the sink and the solution cooled under the faucet to 15°C or less. The trap was removed, a few marble chips dropped in the flask to provide a carbon dioxide atmosphere, a little starch

TABLE I  
COMPARISON OF TEST RESULTS

Sample	Certificate Tin Value, Pct	Fast Method, Pct
Sheet Brass <sup>1</sup>	0.97	0.98 0.98 0.99
Manganese Bronze <sup>1</sup>	0.90	0.99 1.00 0.98
Silicon Bronze <sup>1</sup>	0.97	1.00 0.97 1.00
Casting Brass No. 1	0.60 <sup>2</sup>	0.70 0.67 0.69
Casting Brass No. 2	0.74 <sup>2</sup>	0.76 0.76 0.74

<sup>1</sup> Bureau of Standards alloys.

<sup>2</sup> Determined by ammoniacal ppt. of tin, sulfation, addition of water and hydrochloric acid, reduction with test lead and iodine titration.



solution added as indicator and 5.0 g of c.p. ammonium thiocyanate (solid or as 100 pct solution) added to precipitate the copper as white cuprous thiocyanate. The solution was immediately titrated with standard iodine solution to a blue end-point. Some results obtained in this manner, using Bureau of Standards and other alloys and running them in triplicate, are shown in Table I.

The end-point in this method is rather fleeting compared to the end-point obtained in the conventional, longer method, but is easily ascertainable, even by unprofessional assistants. It is best to standardize the iodine solution from a standard brass rather than from pure tin. Although Kinnunen and Merikanto<sup>1</sup> recommended addition of 5.0 g sodium hypophosphite as reductant it

was found that 2.0 g are sufficient. More than a trace of antimony in the alloy is considered an interference. If much antimony is present, add 0.5 g of potassium iodide just before titrating. Thirty percent hydrogen peroxide is a powerful, corrosive reagent and should be handled with care.

#### REFERENCES

1. J. Kinnunen and B. Merikanto, *Chemist Analyst*, 41, 4-5, 1952.
2. American Society for Testing Materials, "1950 Book of A. S. T. M. Methods for Chemical Analysis of Metals," Phila., 1950, pp. 267, 325, 390.
3. B. Evans, *Analyst*, 56, 177, 1931.

## NEW BOOKS

*"History of Strength of Materials,"* by Stephen P. Timoshenko. Presents the history of the development of the science of the strength of materials from its beginnings to the present time. McGraw-Hill Book Co., 330 West 42nd St., New York 36. \$10.00. 452 p.

*"Applied Kinematics for Students and Mechanical Designers,"* by J. Harland Billings. A thorough understanding of kinematics is an essential prerequisite to studies in machine design. First quarter of the book is devoted to basic material. In this second edition a new chapter on automatic control and its mechanisms has been added. A series of problems for the drafting room has also been added. D. Van Nostrand Co. Inc., 250 Fourth Ave., New York 3. \$4.50. 352 p.

*"Outlines of Structural Geology,"* by E. Sherbon Hills. Presents within a concise framework various aspects on points of controversy in structural geology. John Wiley & Sons, Inc., 440 Fourth Ave., New York 16. \$3.00. 182 p.

*"Graphite Formation in Ductile Cast Irons,"* by V. A. Altekar and Luiz Antonio de Araujo. A study of the formation of nodular graphite in cast irons and the production of nodular cast iron with calcium. Reports in detail on chemical and thermal factors affecting graphitization. Summarizes history of research regarding formation of graphite in spheroidal or nodular form and theories of nodulization. Dept. of Publications, Colorado School of Mines, Golden, Colo. \$1.00. 67 p.

*"Ion Exchangers in Analytical Chemistry,"* by Olof Samuelson. Dr. Samuelson, professor of engineering chemistry at the Chalmers Institute of Technology, Goteborg, Sweden, has divided his book in three parts. The first is a general

survey of ion exchange resins, equilibria and kinetics. In the second section he covers the techniques of ion exchange separations for analytical purposes. The balance of the book is devoted to a wide variety of applications. John Wiley & Sons, Inc., 440 Fourth Ave., New York 16. \$6.50. 291 p.

*"Reducing Phenol Wastes From Coke Plants."* Prepared by the Steel Industry Action Committee of the Ohio River Valley Water Sanitation Commission. Provides an authoritative summary of sources, volumes and concentrations of by-product coke wastes. Includes an appraisal of process changes and treatment methods by which waste charges can be reduced. Ohio River Valley Water Sanitation Commission, 414 Walnut St., Cincinnati 2. \$1.00. 36 p.

*"Effective Use of Older Workers,"* by Elizabeth Llewellyn Breckinridge. What should the American corporation do about older workers? Provides answers to a series of questions stemming from the relation of American industry to its older workers. Here are facts on what progressive companies have accomplished in hiring, retiring, transferring, and maintaining the health and morale of older employees. Underlying the work of such pioneers in the field as Inland Steel, Cleveland Twist Drill Co. and General Motors is an attitude of social responsibility. These companies have demonstrated that when the health, morale and independence of older workers is maintained, the individual worker, industry and the nation's economy benefit. Wilcox & Follett Co., 1255 S. Wabash, Chicago 5. \$4.00. 224 p.

*"Cast Bronze,"* by Harold J. Roast. The author has prepared an unusual book covering, from 40 years' experience, the entire field of bronze founding. American Society for Metals, 7301 Euclid Ave., Cleveland 3, \$4.00. 458 p.

# Grinding + Mechanization *equals* 2 x Cleaning Output

By W. M. Fitzsimmons

Supt. of Foundry Mill Room  
Truck Engine Works  
International Harvester Co.  
Indianapolis

♦ A casting cleaning department, modernized with grinding equipment and mechanized conveyors, has doubled output with half as many men . . . More thorough cleaning has sharply reduced rejects . . . Only one-third the floor space is now required.

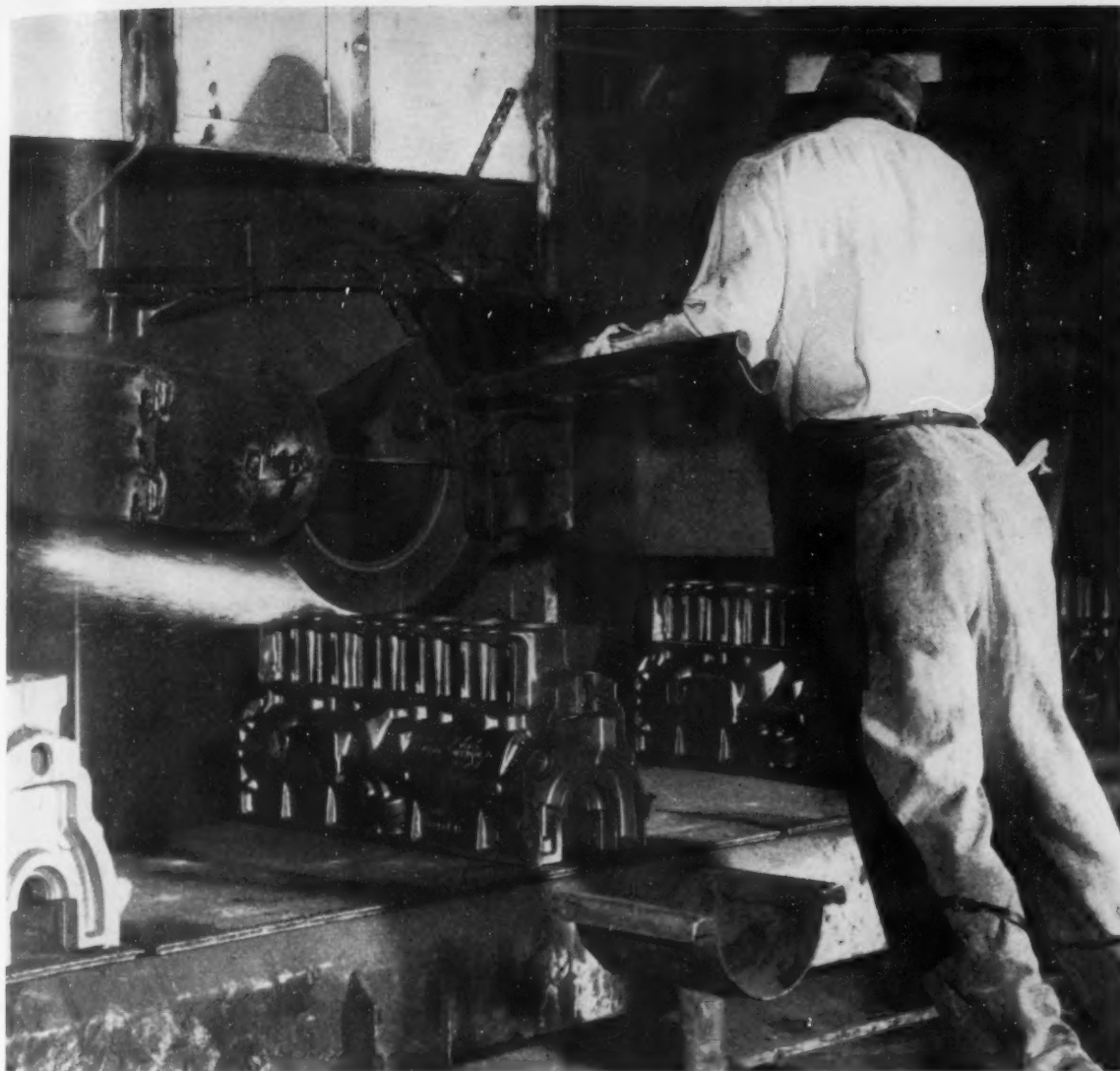
♦ Manual handling is virtually eliminated . . . Less operator fatigue has stepped up efficiency . . . Savings after one year justify the expense of an up-to-date cleaning setup.

♦ **METHODS FOR CLEANING** castings at the Truck Engine Works of International Harvester Co., Indianapolis, were in need of modernization. Studies not only pointed out this necessity, but were convincing enough so that methods were brought up to date and efficiency raised to a level demanded by present production.

The castings cleaned are gray iron cylinder blocks for all International trucks, each weighing more than 200 lb. Cleaning operators at 11 two-man pneumatic chipping booths previously pulled the castings from a roller conveyor onto work benches and turned them by hand. Fins were removed by pneumatic chipping. Blocks were then shoved manually onto another roller con-

## GAINS IN CLEANING BY GRINDING

- 1—Less operator fatigue.
- 2—Output doubled.
- 3—Cleaning time cut 45 pct.
- 4—Two third of floor space saved.
- 5—Cleaning is more thorough.
- 6—Far fewer rejects.
- 7—Man power requirements cut in half—remaining workers filled other important jobs.
- 8—Noise substantially reduced.



GRINDING REMOVES FINs from gray iron casting for truck cylinder block. The resinoid bonded abrasive wheel

is effective for fast, economical removal of stock. New swing frame units were first step in modernization.

veyor and pulled to the next work station. Not only was such man-handling nonproductive, but it placed workers under considerable physical strain and fatigue.

Chipping also required a degree of skill not easily acquired. It sometimes took as long as a year before an operator learned to use a pneumatic gun proficiently. Because of these methods, fin removal was not always complete and uniform.

Improperly cleaned castings also added directly to production costs. Castings sent to the next department were fed into special milling machines set up to receive them. A poor fit in the milling machine required reprocessing in the cleaning department before a casting was again returned for machining.

The studies also showed that grinding, as a cleaning method, would do a better job—and do

it faster and more economically. Accordingly, two swing-frame grinders were installed as the first step in the modernization program. Operators of these grinders now do the work previously done by about 20 chipper operators. This switch from pneumatic chipping to grinding took two weeks.

Meanwhile, the old roller conveyor was replaced by a 136-ft powered conveyor system. As the work moves along, workers seldom need to touch the castings. The chipping booths formerly used were removed and a chipping cage was constructed between the two swing-frame grinders. Only about one-third the plant area now serves for cleaning operations.

Rough castings are delivered from a shot blaster to the start of the cleaning conveyor by a vibrating gravity-feed system. At the first station, core wires are pulled out. The cylinder





DIFFERENCE between a rough cylinder-block casting (left) and a finished casting is pointed out by the

author. After cleaning, castings are sent by conveyor or truck to the next department for milling.



PORTABLE GRINDERS with cone-shaped wheels are used for cleaning less accessible surfaces. This operator is smoothing the surface of location pads.

block then moves to the first swing grinder which cleans fins and other irregularities from the head mounting face.

The grinding wheels of both grinding machines are of the resinoid bonded aluminum oxide type, measuring 24 x 4 x 12 in. This grade of wheel proved most effective for fast, economical stock removal.

After the first grinding operation, the casting is turned over to expose the bottom or pan-rail side. This is the only time in the entire cleaning operation when castings are moved by hand. The blocks then move to the second grinder which cleans the pan-rail surface.

Both grinders are equipped with exhaust booths to remove swarf. Safety chains prevent wheels from being dropped on the workpiece or conveyor. These and other aspects of the grinding operation conform to safe practices recommended by the Grinding Wheel Institute.

When the head and pan-rail surfaces have been ground clean, the casting passes into the chipping cage where pneumatic chipping operators clean the less accessible inner areas. Additional cleaning is done outside the chipping booth with portable grinders using cone-shaped abrasive wheels. One of the important jobs at this station is smoothing locations pads. From the cleaning line, castings are sent to the machine line by another conveyor or by materials handling trucks.

Although the cost of modernization was substantial, savings in the first year more than justified the expense.



# Cast Meehanite Rolls Used for HEAVY-DUTY BENDING



By M. R. Nelson  
Works Manager  
General Iron Works Co.  
Denver

♦ By designing and casting large plate bending rolls of Meehanite metal, a plant's capacity for rolling boiler plate was increased from 1 in. to 2½ in. . . . It saved the high cost of alloy steel forgings originally thought necessary for the great stresses involved.

♦ Preliminary tests with a model top roll confirmed that physical properties of the metal were adequate . . . Except for a few parts, castings are used throughout the machine.

PLATE BENDING ROLLS are expensive—particularly those for rolling heavy plate. Their price to the General Iron Works Co., Denver, seemed prohibitive. To roll heavy plate in the East and ship it to the West was also quite costly. One alternative was to design and make a set of heavy duty rolls which would increase

the plant's plate bending capacity from 1 in. to 2½ in. Would rolls of Meehanite castings do the job?

Engineers with wide experience in roll design and manufacture advised that alloy steel, preferably forgings, would be required to withstand the high stresses imposed in bending 2½-

UNIVERSITY OF MICHIGAN LIBRARIES

**A model top roll, to 1/18 scale,  
was machined from Meehanite GC  
bar and tested under load . . .**

in. thick plate. This was far from encouraging but it sparked an investigation into the possibility of casting them from Meehanite metal type GM.

Bending force or screw down pressure for a 36-in. diam top roll with 18-in. diam journals was calculated from the formula:

$$P = \frac{1.24 \times T \times w \times t^2}{d}$$

When:

- P = Pressure, lb
- 1.24 = Constant
- T = Tensile strength of plate, psi
- w = Width of plate, in.
- t = Thickness of plate, in.
- d = Center to center distance of rolls, in.

Assuming that an A-212 plate has a tensile strength of 70,000 psi, and is 60 in. wide and 2½ in. thick, then

$$P = \frac{1.24 \times 70,000 \times 60 \times 6.25}{32} = 1,017,187 \text{ lb}$$

The cross-sectional area of each 18-in. diam trunnion is 254 sq in.; therefore, shear stress on the trunnions would be:

$$\frac{1,017,187}{508} = 2002 \text{ psi}$$

Using a conservative value of 25,000 psi as the tensile strength of the 36-in. diam roll, which is little more than half the anticipated tensile strength, a value of 20,000 psi is obtained by assuming shear strength to be 80 pct of tensile strength. Using a safety factor of five, the permissible shear load is 4000 psi.

The maximum permissible bending moment, in-lb, equals the permissible working stress times the section modulus for bending,

When:

- M<sub>b</sub> = Maximum bending moment
- S = Permissible working stress
- Z = Section modulus for bending
- M<sub>b</sub> = SZ or,
- M<sub>b</sub> = 4000 × 0.098d<sup>3</sup> = 4000 × 572 = 2,186,000 lb

A model top roll, made to 1/18 scale, was machined from a Meehanite metal type GC bar having a 4-in. diam and a 15-in. length. It was then placed in a support, shown in Fig. 1, and tested under load. While under a load of 48,150 lb, it broke through the trunnion adjacent to the roll. Strength at this critical section is a determining factor as to the ability of the roll to stand up under service conditions.

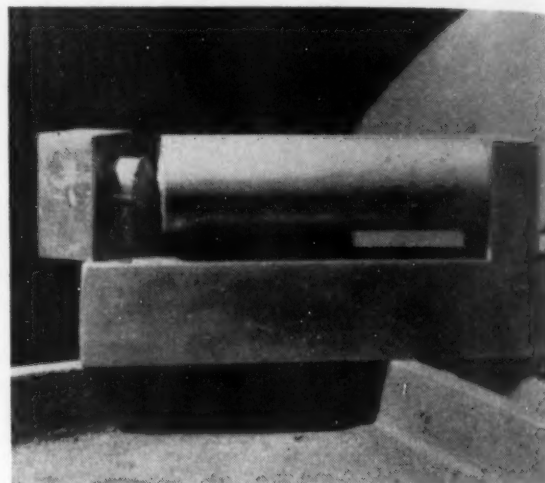


FIG. 1—Top roll, modeled to one-eighteenth scale, was used to confirm design calculations. It broke through the trunnion while under a 48,150-lb load.

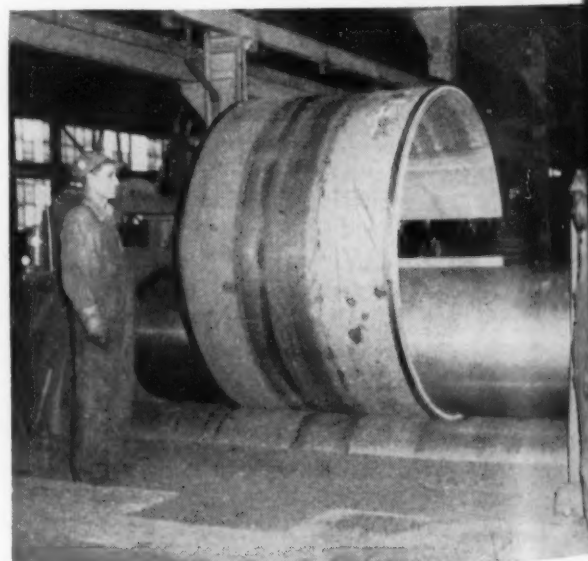


FIG. 2—Completed rolls, cast from Meehanite metal, bend 2¼-in. thick plate for pressure vessel. The total weight of the machine is 247,000 lb.

**WIDTHS OF PLATES ROLLED**

Thickness, in.	Minimum Rolled Diameter, in.	Maximum Width of Plate, in.	
		A-285	A-212
1¼	46	108	96
1½	48	96	96
1¾	54	84	72
2	60	84	72
2¼	70	72	60
2½	78	72	60



Shear stress on the 1-in. diam trunnions of the model roll was about 30,700 lb, or 15,350 lb on each trunnion. Using a safety factor of five, the permissible shear load would be 3070 lb on each trunnion. Calculations for a large roll of type GM metal showed that the permissible shear load would be 4000 psi in actual service. Values obtained from the model roll of type GC metal in this test substantiated that type GM metal would easily handle the 4000-lb load.

The next problem was to cast a top roll and two bottom rolls so that these huge sections would have adequate physical properties. About 66,000 lb of metal were poured to cast the top roll, including the riser, which measured 38 in. through its widest diameter. The casting cooled for 8 days before shaking out. A 2-in. test bar, poured from a 25,000-lb ladle, had a tensile strength of 61,800 psi and Bhn 285.

As a further check, a 1-in. diam specimen machined from the cast roll was tested for shear strength. This specimen was placed through two heavy blocks spaced 1 in. apart. A third block was brought down under pressure between the first two blocks. It required a pressure of 37,000 psi to shear this specimen.

Rough castings for the two bottom rolls had a 26-in. diam and an overall length of 19 ft 9 in. Each required 27,000 lb of metal, plus several thousand pounds which were added to the riser. Tests bars were also poured for these rolls. A 1.2-in. diam bar had a tensile strength of 65,000 psi and Bhn 269. A 2-in. diam bar had a tensile strength of 50,000 psi and Bhn 285.

Another major problem was to design gearing capable of withstanding the tremendous force

necessary to pull down the top roll in forming a heavy plate. Heat-treated Meehanite castings of type GM metal were used for both the worm and worm gear. During operation, pressure between the worm and worm gear forces out all lubricant so that this gear set operates dry. The worm, an integral part of the shaft, had been ground to a mirror finish and after 6 months of operation showed no signs of wear.

Total weight of the completed rolls is 247,000 lb. They are shown in operation in Fig. 2 and a close-up of the operating mechanism is shown in Fig. 3. Except for two forged steel pull-down screws, the bronze pull down nuts and some miscellaneous parts, the machine is made entirely of Meehanite castings. The rolls are 10 ft 2 in. between frame sections which are cast from type GC metal. Most other parts are made of type GM metal.

#### Method saved money

To obtain more information about hardnesses throughout the top roll, a 16-in. thick replica section was cast to a 38-in. diam from type GM metal. It was then machined in a vertical boring mill to a 1½-in. thickness. An equal amount of metal was removed from each side. Fig. 4 shows the hardness values along the diameter of this section as well as those of a 4-in. diam test bar.

The table on the first page of this article lists the thicknesses and maximum widths of plates which can now be cold rolled. In addition to increasing plate bending capacity from 1 in. to 2½ in., the General Iron Works Co. saved thousands of dollars by designing and casting the rolls of Meehanite metal.

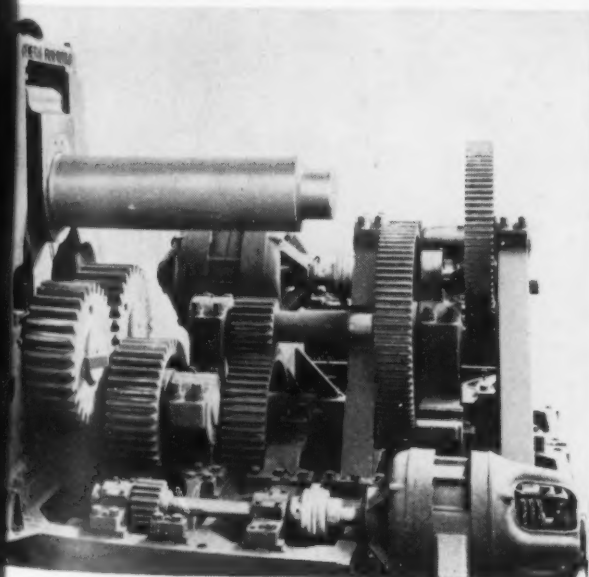


FIG. 3—Gears showed no signs of wear after 6 months despite heavy pressures exerted on them. Rolls and gears were cast from Meehanite type GM metal.

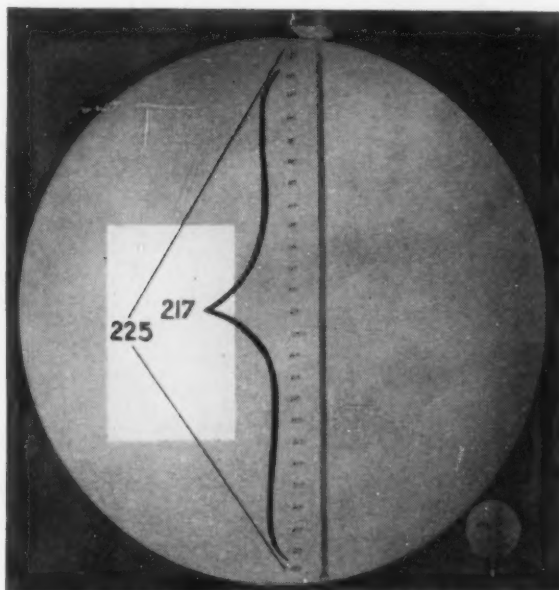
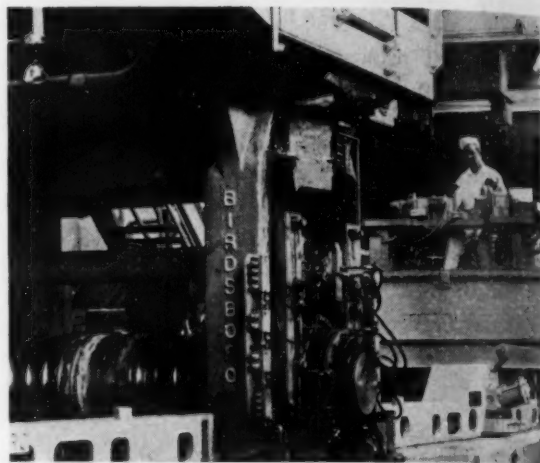


FIG. 4—Brinell values taken across the diameter of a replica section of the 38¼-in. top roll are uniform. Cast metal for the roll weighed 66,000 lb.

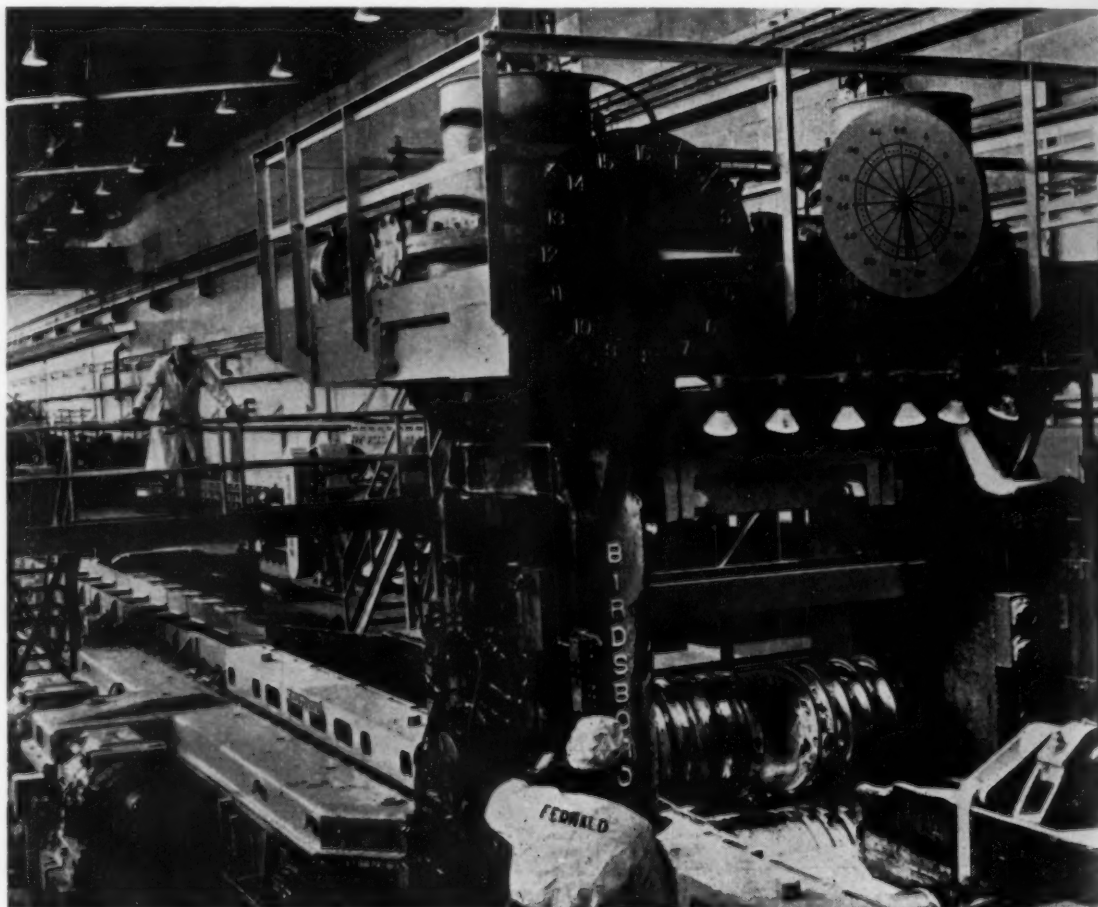
# New Mill Rolls Uranium Bars on Production Basis

♦ PRODUCTION ROLLING of uranium bars from ingots has been attained by the Atomic Energy Commission on a recently installed rolling mill at Fernald, Ohio. The mill, first and only mill in the country designed especially for rolling uranium, was built by Birdsboro Steel Foundry & Machine Co., Birdsboro, Pa.

The Fernald plant produces uranium for use in AEC fissionable materials plants throughout the country. The plant is operated for AEC by National Lead Co. of Ohio. Operation of the rolling mill plays a vital role in the defense production of atomic weapons. Primary and finishing mills are used in the rolling operation. The rolled uranium bars are later fabricated into slugs for use as a source of fuel in nuclear reactors.



URANIUM BARS are rolled from ingots on a production scale in this new mill built by Birdsboro Steel Foundry & Machine Co. and set up at the Atomic Energy Commission's Fernald, Ohio, uranium production center.



CONTINUOUS FINISHING mill follows this primary mill at AEC's Fernald plant. After rolling, the uranium bars

are fabricated into slugs for use in nuclear reactors. Mill has attained steady, high production.

*Checking Rockwell hardness of  
both core and teeth on production run  
of Brad Foote gears . . .*



## METAL HARDNESS

- Upon the correct metal hardness rests the length of life you can expect from the gears you use. Good gear making consists of more than meets the eye. You can see a bad job of machining, but you can't see that the metal is too soft or too hard—until the gears give trouble.
- Here at BRAD FOOTE we make sure of metal hardness. We hold to extremely close tolerances checked carefully on the latest and best hardness-testing equipment. Nothing is left to chance, and no one shares our responsibility. So, when you buy BRAD FOOTE gears for your own use, or for use on equipment you make for others, you know that they will give long, satisfactory service.
- BRAD FOOTE makes every type of gear, out of any type of material. BRAD FOOTE makes speed reducers, gearmotors, transmissions, and intricate power units. We would like to discuss your requirements and make recommendations, or quote on your specifications. We'll give you prompt service.



## BRAD FOOTE GEAR WORKS, INC.

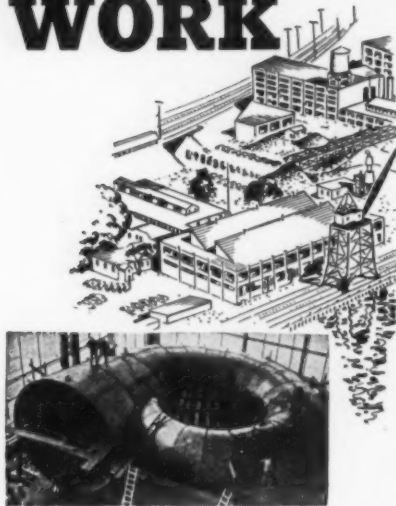
1309 South Cicero Avenue • Cicero 50, Illinois  
Bishop 2-1070 • Olympic 2-7700

### subsidiaries

AMERICAN GEAR & MFG. CO. • PITTSBURGH GEAR COMPANY  
Phone: Lemont 920  
Lemont, Illinois  
Phone: ATlantic 1-9950  
Pittsburgh 22, Pennsylvania



# STEEL PLATE WORK



## TURBINE CASINGS

and other heavy steel plate work are fabricated at Pusey-jones of Hot-Rolled, High-Strength, Low-Alloy Steel.

Every facility for large scale metal fabricating: — Heavy plate shop equipment — Rolls — Shears — Bending furnaces. Stress relieving furnace 33'x18'x16' up to 2100°F. Machine shop for facing, turning, and boring. 50 ton capacity gray iron foundry. Deep-water transportation on one side, the Pennsylvania RR on the other. Talk to our development engineers.

Metals Fabrication Division  
THE PUSEY AND JONES CORP.  
504 Front Street, Wilmington, Del.  
Established 1848

# PUSEY JONES

## Technical Briefs

Engineering

### PRODUCTION:

New 2½-ton electromagnet used to magnetize radio speakers.

A new 2½-ton magnetizing unit—one of the largest in any radio manufacturing plant in this country—has been placed in operation in the loudspeaker assembly line in the Stromberg-Carlson Co.'s plant at Rochester, N. Y.

The new electromagnet was designed especially for magnetizing the 10½-lb Alnico V permanent magnet in a 15-in. high fidelity loudspeaker.

The magnetizing unit consists of a steel yoke, supporting the two pole pieces, each 1 ft in diam. Each pole piece is wound with three coils. Each coil contains 1450 turns of No. 12 cotton-enamel copper wire.

### Assembly Weighs 2½ Tons

There are about 700 lb of copper in the coils. The complete assembly weighs slightly over 5000 lb.

The electromagnet is activated by a self-excited generator which supplies 50 amp, at 300 v, to the coils. Density of the magnetic flux in the unit's air gap is 10,000 gauss.

However, when one of the 15-in. speakers is introduced into the gap, flux density rises to 14,000 gauss.

A further concentration of the magnetic flux occurs after the speaker is removed from the electromagnet's field. At the "tweet-



HIGH FIDELITY loudspeakers, 15-in. in diam, move on belt through a new 2½-ton magnetizer at plant of Stromberg-Carlson Co., Rochester. Photoelectric cell turns magnetizer on and off.

### IF YOU WANT MORE DATA

You may secure additional information on any item briefed in this section by using the reply card on page 97. Just indicate the page on which it appears. Be sure to note exactly the information wanted.

er," or high frequency, end of the magnet, the flux density then becomes about 15,000 gauss.

### Speakers On Belt

In the loudspeaker assembly line, magnetizing of the speakers' permanent magnets is one of the final steps, and the speakers are virtually complete at that stage. A slow-moving endless belt, which glides directly over the face of the magnet's lower pole, at the same height as the assembly-line bench, carries the loudspeakers through the magnetic flux.

### FOUNDRY:

Ejection of aluminum castings from molds speeded.

By using dispersions of colloidal or semi-colloidal graphite for mold coatings in the casting of aluminum and magnesium, Alumicast Corp., Chicago, speeded ejection of castings from molds and cut rejects from drag in the mold.

The colloidal-graphite dispersion used at Alumicast is 'Aquadag', and 'Prodag' is the semi-colloidal product. Both are water dispersions, made by Acheson Colloids Co., a division of Acheson Industries, Inc., Port Huron, Michigan.

These 'dag' dispersions are diluted with water to the required viscosity. The mixtures are then applied to heated surfaces thoroughly cleaned of all grease and foreign matter. In cases where other 'dag' dispersions in rapidly evaporating solvents are preferred, heating of surfaces is not required. Properly diluted, the dispersions can be applied by brushing, spraying, or dipping.

## RESEARCH TOOL:

New balance automatically records fast changes in weight.

Rapid changes in weight can be continuously recorded with good accuracy on a new analytical balance recently developed by the National Bureau of Standards.

The new instrument is being used by NBS to record changes in weight of complex minerals during thermal decomposition. Because it combines, versatility and convenience with low cost, the device is suitable for many other laboratory applications requiring a record of weight as a function of time.

### Balance With Solenoid

A conventional laboratory balance modified so that changes of weight are balanced by adjustment of a magnetizing current is used. The balancing force results from the interaction of the magnetic field of a solenoid with the field of a permanent bar magnet suspended, inside the solenoid, from one side of the balance.

Automatic balancing is achieved by means of a photoelectric sensing arrangement in which a beam of light is reflected to a dual phototube from a mirror mounted on the balance beam. The two sections of the phototube are connected in a bridge circuit. The output is then amplified and applied to the solenoid.

### Follows Weight Changes

Any change in weight tending to produce unbalance is promptly counteracted by whatever change of solenoid current is needed to maintain balance (within a small fraction of a division of the balance scale). An electronic damping circuit eliminates oscillations and enables the electrical output of the instrument to faithfully follow very rapid changes of weight.

The record of weight changes is obtained by connecting a resistor in series with the solenoid and applying the voltage developed across this resistor to a commercial recording potentiometer of the strip-

Turn Page

# ORTON

## Torque-Control

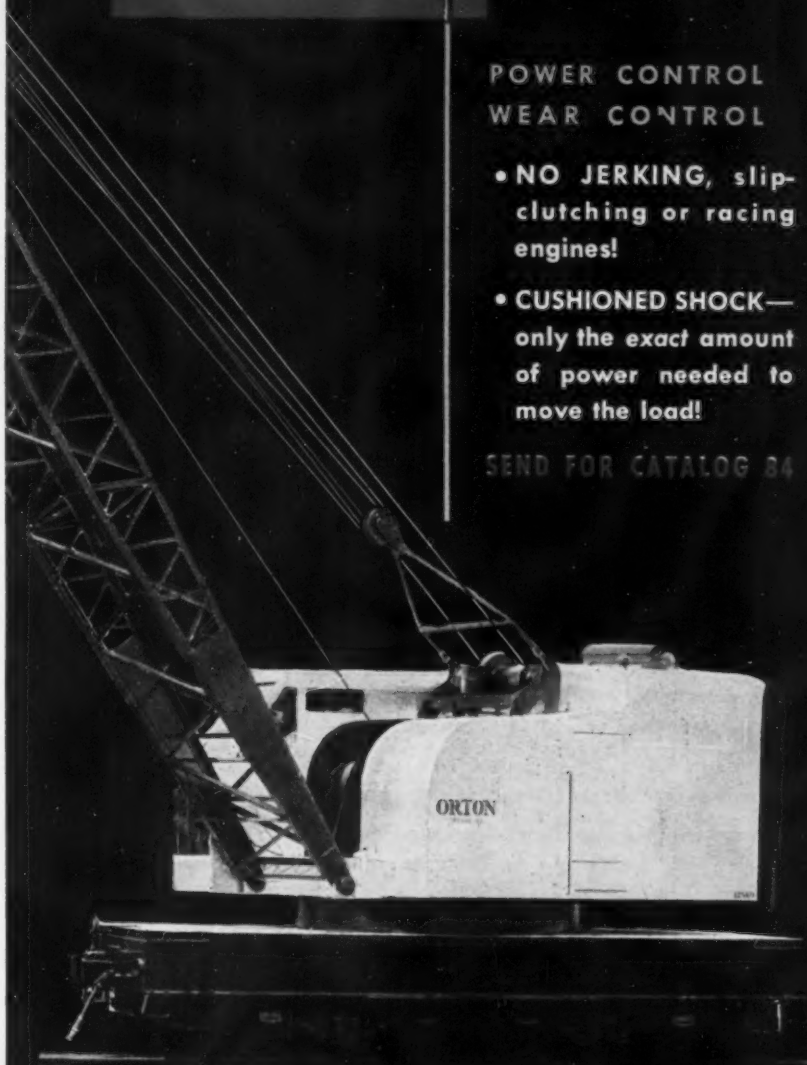
MEANS

POWER CONTROL  
WEAR CONTROL

- NO JERKING, slip-clutching or racing engines!

- CUSHIONED SHOCK—only the exact amount of power needed to move the load!

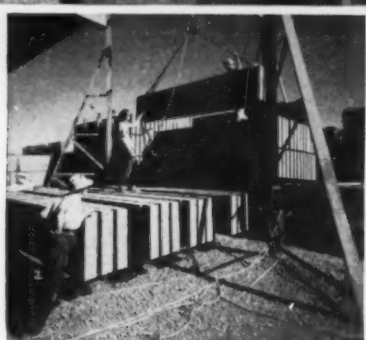
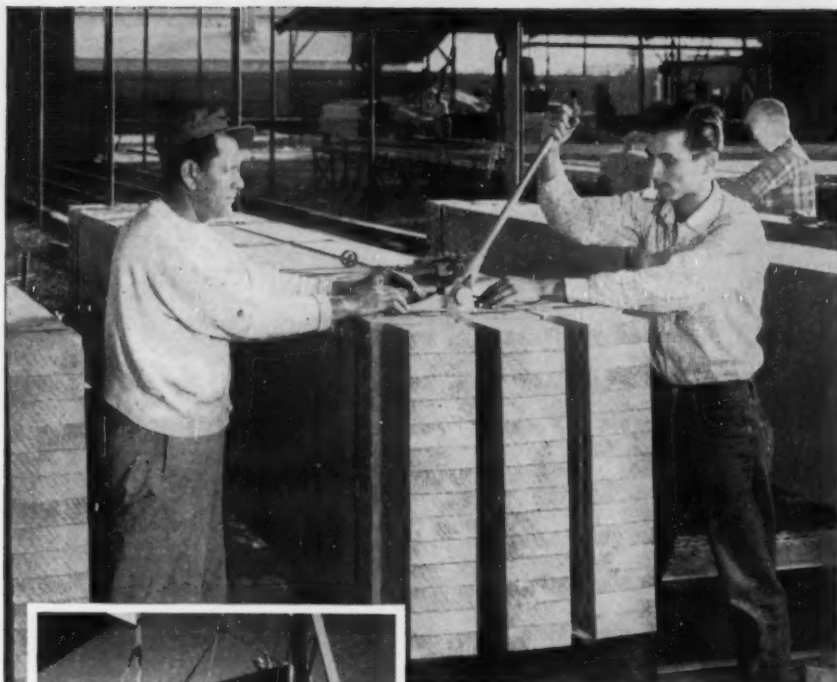
SEND FOR CATALOG 84



**ORTON CRANE AND SHOVEL COMPANY**

608 SOUTH DEARBORN STREET • CHICAGO 5, ILLINOIS

• PATENTED



"Packaged" bridges are rolled on conveyor to loading platform, then quickly hoisted aboard flatcars. Photos at Smith Pipe and Steel Company, Phoenix, Arizona.

## PACKAGING A BRIDGE

### Brainard Strapping Service speeds handling of defense materials

These prefabricated Bailey Bridges, used by the armed forces to cross rivers, culverts, etc., are now securely packaged into unit loads with the Brainard Strapping System. This method permits fast mechanized handling of the product from manufacture to shipment.

Equally important, the shipments are secured against loss, damage or pilferage until opened for use in the field.

Brainard can help you streamline your materials handling, and meet armed forces shipping specifications. Have an analysis of your handling and shipping operations now—Brainard salesmen are qualified to *recommend and demonstrate* the most efficient system for you.

For complete information call the nearest Brainard Steel sales office, or write Brainard Steel Division, Sharon Steel Corp., Dept. O-5, Griswold Street, Warren, Ohio. In Canada: Brainard Steel Canadian Division, Toronto.



## STEEL STRAPPING

### —Technical Briefs—

chart type. Since the balancing force exerted on the magnet is directly proportional to the current through the solenoid, the weight scale is linear and the recorder is easily made to read directly in milligrams.

By substituting a different dropping resistor, a different magnet, or both, full scale ranges of as little as 10 milligrams or as much as 1 gram are obtained. For ranges of 100 milligrams or more, accuracy is better than  $\frac{1}{2}$  of 1 per cent of full scale.

#### Balance Circuit Simple

In addition to the phototube, the entire tube complement consists of two twin-triode amplifiers, a power-supply rectifier, and three voltage regulators. When the two sections of the phototube are equally illuminated, the output of the bridge circuit in which they are connected is zero. Any movement of the balance beam results in a bridge output voltage proportional to the departure of the beam from its equilibrium position.

If this voltage is amplified and applied to the solenoid without any provision for damping, the balance tends to oscillate around the equilibrium position. To eliminate this oscillation both magnetic and viscous damping were tried successfully, but a simple modification of the electronic circuit to provide velocity damping proved far more convenient.

#### Braking Force

The velocity-damping circuit, senses the rate at which the unbalance signal is changing and applies to the solenoid a component of current that is proportional to this rate. This current is phased to oppose the motion of the beam.

The result is a braking force, proportional to the velocity of the beam, that can be adjusted to eliminate the tendency of the beam to oscillate. When the damping control is properly adjusted, an abrupt change in weight as great as 1 gm can be recorded in 3 sec without excessive hunting.



## Technical Briefs

### FINISHING:

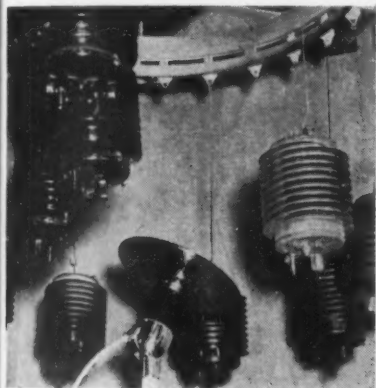
Equipment aids development of electro-spray painting.

New and varied types of equipment are helping speed development of electro spray painting. Both at the laboratories of Ransburg Electro-Coating Corp., and through installations in the field, valuable data is accumulating on the process.

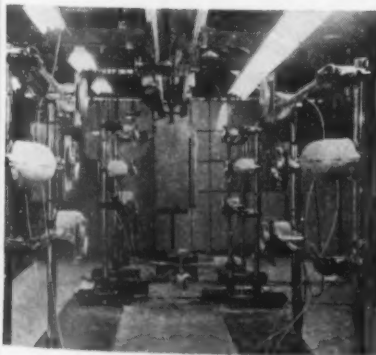
Foremost are new and improved types of atomizers. These improve the basic process. But beyond these are indexing and bunching devices which both speed and smooth the continuous spray painting operation.

### Mechanized Handling

The electrospray method of painting readily lends itself to mechanized handling of parts. An outstanding application of the

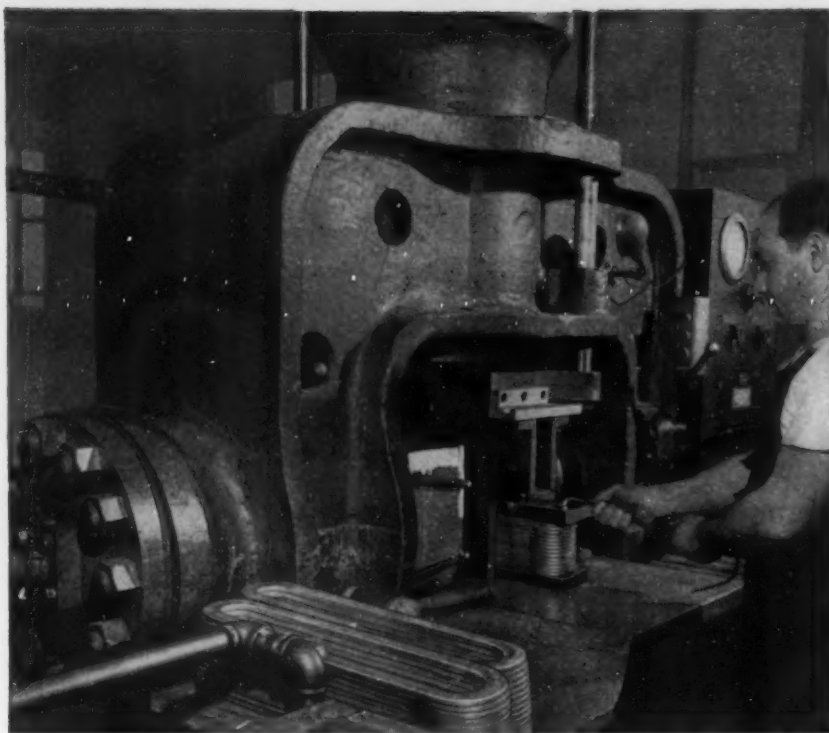


DISK ATOMIZER is one of several units set up in laboratory for demonstrating electro-spray process.



TEST STAND at Ransburg Electro-Coating Corp., Indianapolis, has two paint stations served by bunching and indexing arrangement. Installation can handle large metal cabinets easily.

Turn Page



How this 2-way

## FARQUHAR Hydraulic Press

forms motor and generator coils

In producing motor and generator coils from  $\frac{1}{4} \times 1$ -in. copper stock, the stock is first bent and the ends laminated, and then pressed to restore them to their original thickness. Then, the coil is put in this Farquhar 2-way Hydraulic Press for "pressing" the form.

The coil is laid on a steel block, a three-part filler mandrel inserted, and a top block applied. The press "snugs" the coil sides at low pressure (40 tons); then the vertical ram snugs the top. The operator kicks the pressure-shift pedal, to double vertical-ram pressure for forming.

Capacities of rams are 100 tons horizontally and 200 tons vertically. Illustration above shows operator withdrawing the coil after forming has been completed.

### Farquhar Presses Cut Your Costs

The above installation is just one more

example of Farquhar performance in heavy production! Farquhar Presses are built-for-the-job . . . assure faster production due to rapid advance and return of the ram . . . greater accuracy because of the extra guides on the moving platen . . . easy, smooth operation with finger-tip controls . . . longer life due to positive control of speed and pressure on the die . . . long, dependable service with minimum maintenance cost!

Farquhar engineers are ready to help solve whatever production problem you may have. Their expert assistance is yours for the asking. Give them a call . . . at no obligation, of course!

Or, send for our free catalog showing Farquhar Hydraulic Presses in all sizes and capacities for all types of industry. Write to: THE OLIVER CORPORATION, A. B. Farquhar Division, Hydraulic Press Dept., 1503 Duke St., York, Pa.

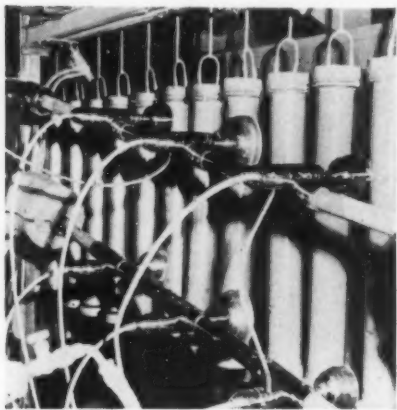
# Farquhar

## HYDRAULIC PRESSES

for Bending • Forming • Forging • Straightening • Assembling • Drawing  
Extruding • Joggling • Forging • and other Metalworking Operations

THE OLIVER CORPORATION • A. B. FARQUHAR DIVISION

method is the painting of washing machine cabinets at the Whirlpool Corp., St. Joseph, Mich. A special screw conveyor groups the parts during travel between atomizing heads for greatest painting economy.



ELECTRO-SPRAY painting helps speed up finishing of 3-in. 50 cal Navy cartridge tanks made by Aluminum Goods Mfg. Co.

## PIERCING:

Slots in stainless jet engine vane ring pierced rapidly.

Sixty-four slots are pierced in a stainless steel jet engine vane ring in 40 seconds on a new 32-ton capacity horizontal power press. The special press, designed by V & O Press Co., Div. of Emhart Mfg. Co., Hudson, N. Y., has simplified piercing operations and loading and unloading of heavy work pieces.

The fully automatic piercing operation is accomplished by two slides, adjustable to punch either outside-in or inside-out. The ring measures approximately 1/8-in. thick, 3 1/2-in. high, and 32 in. in diam.

### Has Air Clutch

Loading and unloading is done manually, bringing the total floor-

to-floor time to 1 1/2 min per piece.

The press is equipped with an air clutch and special indexing fixture, with complete electro-pneumatic control. Factors which influenced adoption of the horizontal position included ease of loading and unloading and the problem of keeping the heavy piece in position during operation.

### Automatic Sequence

A simple operating sequence makes running the press easy. After placing the ring in position, the operator presses a button. From then until the piece is ready for removal the operation is automatic.

When the button is pressed an air-operated hold-down swings into position, then moves down and clamps on the ring. When the hold-down reaches the down position, the press starts automatically.

# The Harrington & King PERFORATING CO.

5657 FILLMORE ST., CHICAGO 44, ILLINOIS  
NEW YORK: 114 LIBERTY STREET, 6

## MATERIALS

All of the metals — steel, copper, brass, aluminum, monel, zinc and stainless steel.

Wood Products — hard boards and plywood.

Plastics—and plastic coated fabrics in sheets or rolls. Materials can be perforated in sheets, plates or coils.

## PERFORATIONS

Round holes from 1/50" diameter up through 9" diameter.

Slotted patterns from .006 wide, upward. Squares, triangles, ornamental and special shapes in a wide range of patterns, spacings and arrangements.

## FABRICATING

Shearing, rolling, welding, embossing and other fabrication when required.

## FACILITIES

The largest shop in the country devoted exclusively to perforating — with 70 years of experience and specialized equipment designed to handle small or large orders—with emphasis on quality workmanship at lowest possible prices.



### Catalog No. 62

Fully illustrates and describes H & K Perforations — write for your copy.

## PERFORATED MATERIALS

*Industrial - Ornamental*

Any Perforation — Any Coil, Sheet or Plate Material

If it can be perforated . . . H & K can perforate it!

## Technical Briefs

### PRODUCT DESIGN:

New approach to tire chain design solves old problem.

Imaginative use of steel cable and redesign of a connector have simplified the old problem of getting the skid chains on or off your car.

Conventional tire chains consist of two side chains, to which the cross chains are attached. Cleveland Chain & Mfg. Co., recently developed a tire chain (Minit-On) which can be quickly and easily put on without jacking up the wheel, moving the car or crawling under it.

### Design Requirements

Cable fasteners were designed to meet these requirements:

1. They must be securely anchored to the cable, so the assembly will not separate under the strain of a difficult pull through deep snow nor fly apart due to the centrifugal force resulting from high speed driving.

2. They must be easy to fasten and to unfasten. During the simple process of applying Minit-On, the two pieces of cable are attached together, separated and attached again. In removing, the two pieces of cable are separated once more.

3. When attached, the male and female fasteners must not shake apart or become separated accidentally.

### Bead Chain Link

The coupling design is similar to the little coupling link used with bead chain (for such things as light fixture pull chains and key chains). The design went through several stages of development until it finally emerged in its final form as shown in the drawings.

The male connector is a screw machine product, and is swaged onto the steel cable. The female connector is a stamping which is blanked, formed and inserted into a sleeve. The unit is then pressed onto the cable.

The coupling will withstand a pull of 1700 lb., which compares favorably with the 1430 lb strength of the outer side chain.

# ARMSTRONG *Carbide* TOOL HOLDERS



**For  
Higher  
Speeds,  
and Heavier  
Feeds**

ARMSTRONG Carbide Tool Holders and ARMIDE (Carbide

Tipped) Cutters come in cased sets for tool rooms and maintenance departments, and individually in all sizes for general machine shop and production turning. They permit not only the ready machining of sand-filled castings, the hardest and toughest steels as well as many heretofore "unmachinable" materials, but also make practical much heavier cuts and cutting speeds up to 600 f.p.m. on ordinary work. They also run from 10 to 100 times as long between regrindings.

Write for Catalog

**ARMSTRONG BROS. TOOL CO.**

"The Tool Holder People"

5209 WEST ARMSTRONG AVE., CHICAGO 30, ILLINOIS  
NEW YORK • SAN FRANCISCO



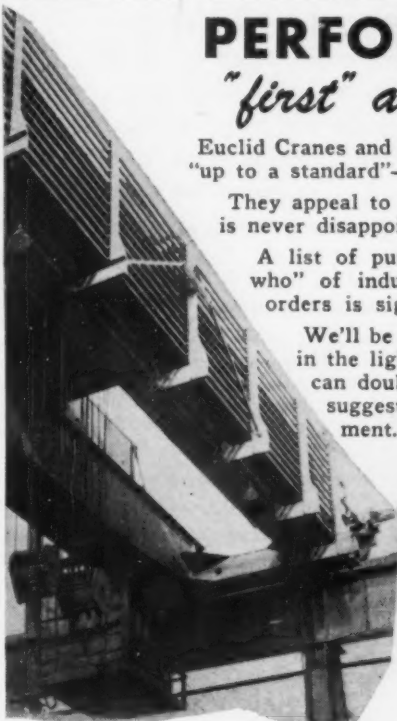
## PERFORMANCE *"first" and "foremost"*

Euclid Cranes and Hoists have always been built "up to a standard"—never "down to a price."

They appeal to the seeker for quality and he is never disappointed.

A list of purchasers reads like a "whoso who" of industry. The record of repeat orders is significant and impressive.

We'll be glad to discuss your problems in the light of our long experience and can doubtless offer some constructive suggestions as to methods and equipment.

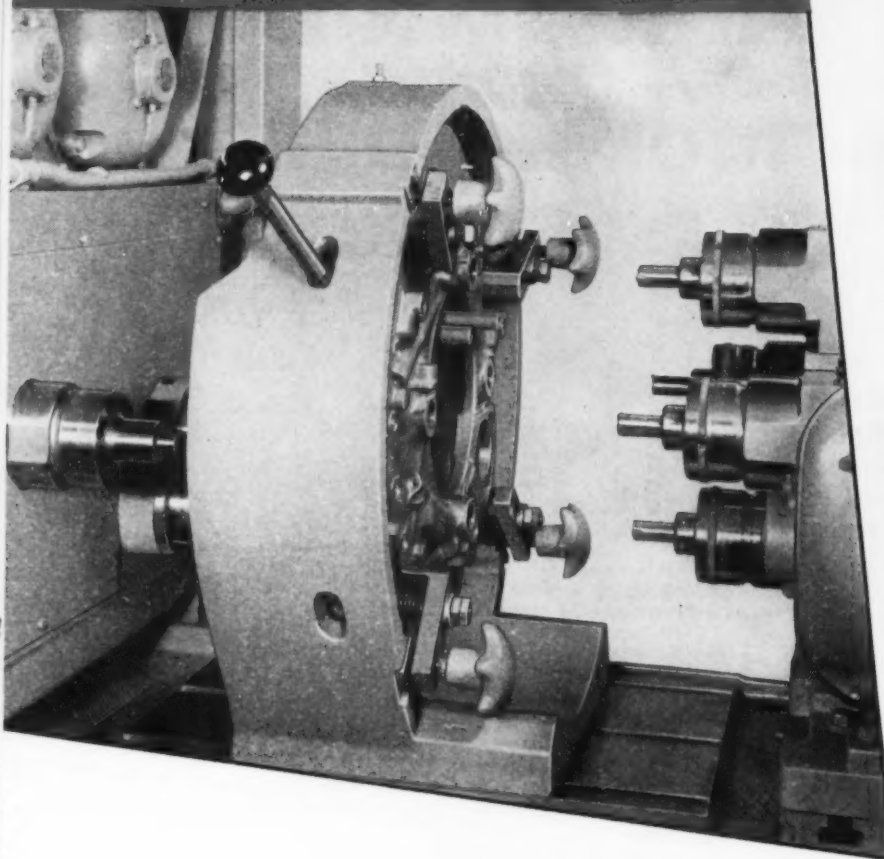


Write for Catalogs.

**THE EUCLID CRANE & HOIST COMPANY**  
1361 CHARDON ROAD, EUCLID, OHIO







# Another Way!

## Relation of 7 Bores Held to Close Tolerances

The standard Style 17 Ex-Cell-O Precision Boring Machine shown above is equipped to finish-bore seven holes in a magnesium supercharger support. An individual spindle and a two-spindle cluster at the left end of the machine finish three holes, then four individual spindles at the right end finish the remaining holes—all during one automatic work cycle.

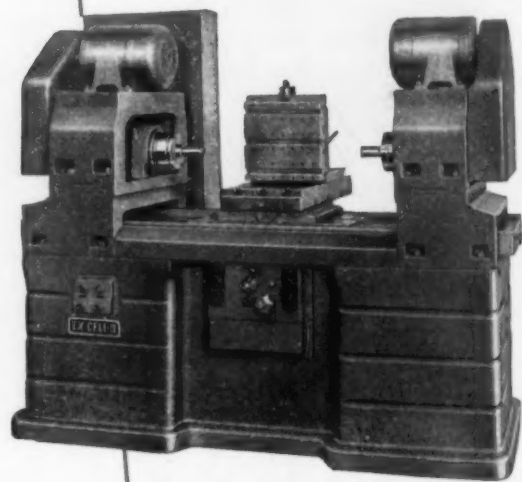
Bore diameters are held to plus or minus .0005"; relative location of holes is plus or minus .001".

\* \* \*

Call your Ex-Cell-O representative for complete information; or write Ex-Cell-O for Catalog 31205, with the complete story of Ex-Cell-O Precision Boring Machines.



MANUFACTURERS OF PRECISION MACHINE TOOLS  
CUTTING TOOLS • RAILROAD PINS AND BUSHINGS  
DRILL JIG BUSHINGS • DAIRY EQUIPMENT  
AIRCRAFT AND MISCELLANEOUS PRODUCTION PARTS



The Style 17 is a rugged, double-end precision boring machine for accurate boring, turning and facing operations on medium-size and large workpieces. Shown above with Universal Fixture.

# EX-CELL-O CORPORATION

DETROIT 32, MICHIGAN

# Major Steel Users' Stockpiles Low and Unbalanced

**Auto and appliance makers exert most pressure for steel but aren't satisfied . . . Steel stays limiting factor in Detroit . . . Appliance maker uses steel as fast as it comes in.**

Inventories of the major steel users are still far below normal and badly unbalanced. Those who have been putting on the hottest pressure for steel—the automotive and appliance industries—are still unsatisfied. They report inventories ranging from 15 to 30 days' supply, which is a long way from normal at today's consumer buying pace.

Here are facts behind the inventory picture: (1) Steel is still a limiting factor in Detroit, particularly in auto body plants; (2) high-priced foreign and conversion steel is still a major factor in keeping up operations of The Big Three; (3) strikes in auto parts suppliers' shops could ease raw materials, tighten the parts supply outlook; (4) at least one automotive "independent" is cutting back on conversion and other "penalty" steel for the third quarter.

**Average 30 Days . . .** In the appliance field these are the high-spots: (1) One of the largest manufacturers has been using steel as fast as it can get it, is in no mood to relax steel buying pressure; (2) five appliance companies—which do the bulk of the business—report average inventories at about 30 days overall.

(3) These companies are down to 15 days or less on some components; (4) strike-caused automotive slowdowns are being seized upon by appliance people as grounds for hope for more steel—but Detroit won't relax the pressure; (5) possibility of a steel strike is not being overlooked by any purchasing agents but the dilemma is how much premium

price steel they can afford to buy as a hedge.

**"Ship It Now" . . .** Steel firms interviewed by IRON AGE this week saw no possibility of any substantial slackening of demand until the fourth quarter. Some of them will have sizable carryovers from the second to the third quarter on sheets, some structurals and shapes.

One producer commented frankly: "My customers are raising hell for more steel tonnage as soon as it can be shipped." Such insistent demand continues for all tonnage products, including tinplate, bars, sheets, plate, pipe, structurals.

A pipe producer believed the market for large diameters will endure in good strength for more than 2 years. While his order book is crammed through August and he must keep customers at bay for later months, his inventory of raw steel is at the lowest point in history.

**Outproduce 1952 . . .** Contrary to ill-timed reports pointing to a serious downtrend of appliance production, this industry is maintaining high output with but few exceptions. Hotpoint President John C. Sharp told IRON AGE his sales are outstripping last year's by 90 pct. Other firms expected to out-produce 1952, in itself a profitable year.

A weathervane of consumer buying interest, appliance sales in the first quarter indicated a clean-cut boom—with washer, dryer, and ironer sales jumping 35.5 pct over the same period last year. Although at least two major appliance producers announced cut-

backs this month, the bulk of the industry's output did not falter—and in some cases was jacked up higher. This in a highly competitive market.

A few "down" signs were cropping up in this market but most producers interpreted them not as harbingers of recession but as signs a slower but normal market would return late this year.

Meanwhile defense spending was to be fattened by unspent carryover funds. These were seen as assuring a \$40 billion spending rate this year and next.

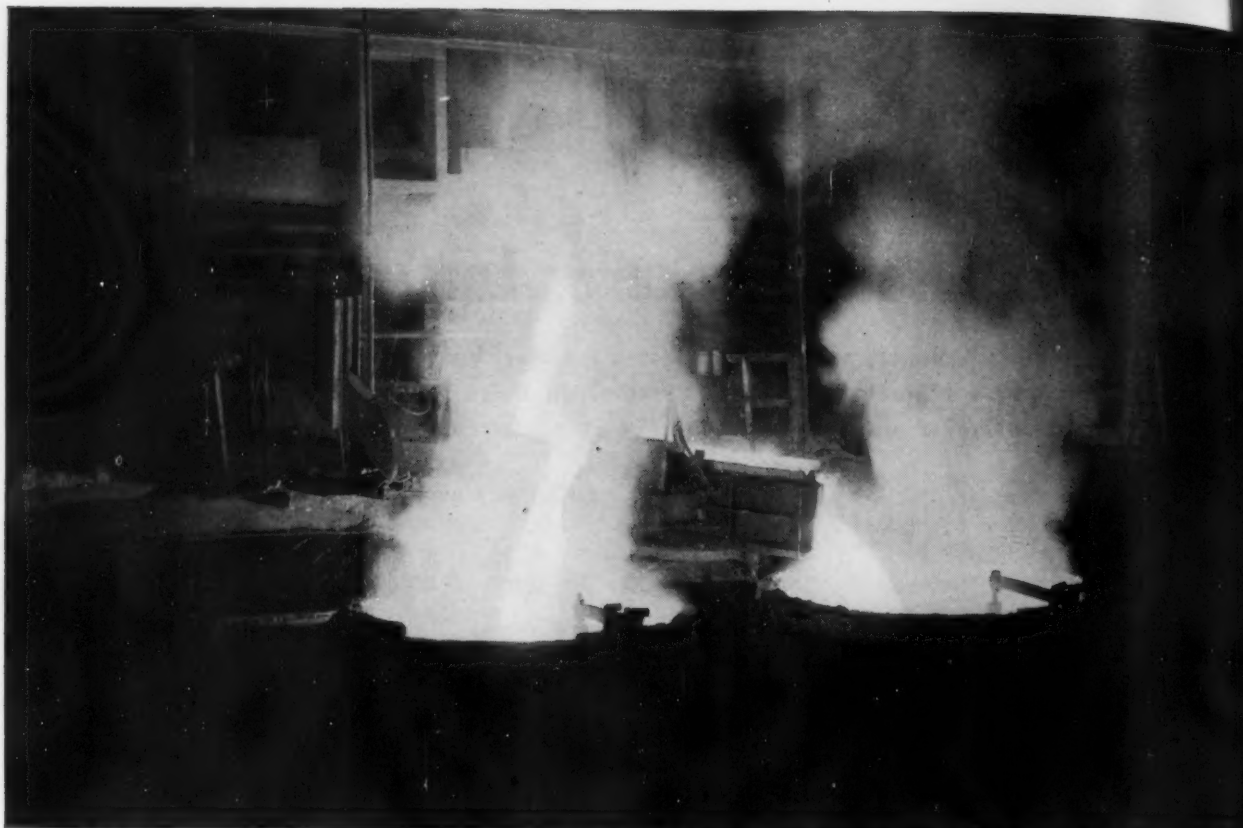
**Another Bout Later . . .** Some weeks may pass before major steel consumers work up estimates of how much their costs have been raised by steel industry extra and base price increases. The current phase of steel price increases has run its course. Almost all products have been touched by steel's need to make a fair profit.

Steel-union wage negotiations are expected to bring another round of increases in base prices. While some base prices have been increased most of the adjustments have been in extras.

This week's IRON AGE finished steel composite price rose from 4.390¢ per lb to 4.417¢ per lb as all major producers of pipe and tubing hiked their base prices.

Steelmaking operations this week are scheduled at 101.0 pct of rated capacity, up 1/2 point.

**Scrap Stiffens . . .** In scrap trading circles any news was good news. With the market sluggish for several weeks, scrap men in some areas detected a slight stiffening. They thought the price slide of prices had about reached bottom and now waited for larger consumer orders. THE IRON AGE heavy melting scrap composite edged up to \$38.67 from \$38.17.



PHOENIX IRON & STEEL COMPANY, Phoenixville, Pa., is one of the nation's oldest steel producers. Above, Phoenix open hearth furnace being tapped by bazooka gun.

## Steel, anyone?

Or, for that matter, aluminum, Fiberglas, magnesium?

Name a basic material on industry's shopping list and chances are that one of Barium's 16 integrated companies has a hand in its production or fabrication.

No other steel producer fabricates so many different products. No other processor can match Barium's ability to turn magnesium, the versatile sea-born metal, into basic structural forms. Barium specialists are also breaking new ground in the utilization of Fiberglas for structural appli-

cations, such as aircraft shelters and barges.

This close-knit and fully integrated organization of 16 companies offers you a wealth of top-rank engineering talent and extremely flexible production facilities. They can take excellent care of your requirements for structural and fabricated materials, whether routine or highly specialized. We'll be glad to tell you how. Just drop a line on your company letterhead direct to Barium Steel Corporation, 25 Broad Street, New York 4, N.Y.



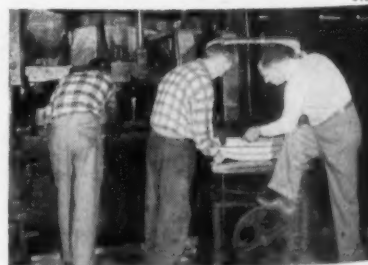
BAYONNE BOLT CORP. • CENTRAL IRON AND STEEL COMPANY • CHESTER BLAST FURNACE • CLYDE IRON WORKS, INC. • CUYAHOGA SPRING COMPANY • EAST COAST AERONAUTICS, INC. • ERIE BOLT AND NUT COMPANY • GEOMETRIC STAMPING CO. • GLOBEForge, INCORPORATED • INDUSTRIAL FORGE & STEEL, INC. • JACOBS AIRCRAFT ENGINE CO. • KERMATH MANUFACTURING CO. • KERMATH LIMITED (CANADA) • PHOENIX BRIDGE CO. • PHOENIX IRON & STEEL CO. • WILEY MANUFACTURING CO.



INDUSTRIAL FORGE & STEEL, INC., Canton, O., one of the nation's largest producers of heavy flat-die forgings, works in all types of steels and other metals. Here, titanium is being forged.



AT 60° BELOW, this air-borne Fiberglas-and-magnesium alert shelter protects planes and crews. Designed and built by Barium's East Coast Aeronautics, Inc., Pelham Manor, N. Y.



DOUBLE CHECK is given a radiator support for an Army truck by inspectors at Geometric Stamping Co., Cleveland, O., which turns out steel and aluminum stampings for industry.



## Market Briefs and Bulletins

**Soviets Suffer . . .** Russia's production of machine tools was increasing 18 pct per year for several years prior to 1950 but dropped to 3 pct last year, said Col. W. F. Rockwell, assistant to the Secretary of Defense, at a meeting of the Gas Appliance Mfrs. Assn., at White Sulphur Springs, W. Va. Output of steam turbines, heavy tractors and metallurgical equipment dropped from a 59 pct increase in 1950 to 7 pct last year. Urgently needed production of locomotives and freight cars fell off so badly that the Soviet has published no report on these items, he said. Col. Rockwell attributed the slowed expansion to the fact that Russia is supplying "war goods to her fighting powers." He said his figures were based on reports from Moscow.

**Wire Prices Upped . . .** Northwestern Steel & Wire Co. has boosted prices of its barb wire and field and heavy poultry fence. The increases range from 2 to 12 columns on different products. Effective May 8, the company's base price for merchant wire is \$6.375 per 100 lb and \$6.925 per 100 lb for galvanized merchant wire.

**Wage Negotiations . . .** U. S. Steel Corp. and the United Steel Workers will resume negotiations on the union's demand for a wage increase on June 3. Presumably, the company will reply to arguments presented by the union in support of its demand. Labor settlement in the auto industry may stiffen the union's attitude.

**Increase Copper Sulfate Quota . . .** Office of International Trade has established a second quarter supplemental quota of 7500 tons of copper sulfate, making the total quota for the quarter 15,000 tons. Exports during the third quarter will be an open-end basis.

**Win Cable Contract . . .** Alcoa last week snared one of the largest aluminum cable orders ever placed when Bonneville Power ordered \$3.9 million worth of 1.6 in. diam cable for power lines to run from McNary Dam to Portland, Ore., and from Chief Joseph Dam to the Puget Sound area. Fabrication will be carried out at Alcoa's new \$1.7 million cable-making facility now partially completed. Alcoa was low bidder at \$4,078,784 for the overall contract.

**Raise Pipe . . .** Kaiser Steel Corp. has raised prices on its resistance welded pipe. Sizes affected are 4 in. and larger. The increases varied up to \$11 per ton. The company is also expected to hike prices on smaller butt-weld and seamless pipe and tubing soon.

**Close Mill . . .** Production of western hot-rolled sheet will be slowed down 4 to 6 weeks, starting late this summer. Reason: Kaiser Steel Corp. is shutting down its 4-stand hot strip mill to add two new stands for production of thinner sheets.

**Call Barge Strike . . .** A strike of marine engineers on union barge lines has hampered shipment of tinplate from Pittsburgh district mills. Walkout for higher wages affects shipments to down-river consumers. Mills affected include Weirton, Wheeling, Jones & Laughlin, and U. S. Steel.

**Brass, Bronze Shipment . . .** Combined volume of shipments of ingot brass and bronze for April was estimated at 25,044 tons by Defense Council of the Ingot Brass & Bronze Industry. Shipments for the same month last year amounted to 22,547 tons.

## STEEL OPERATIONS

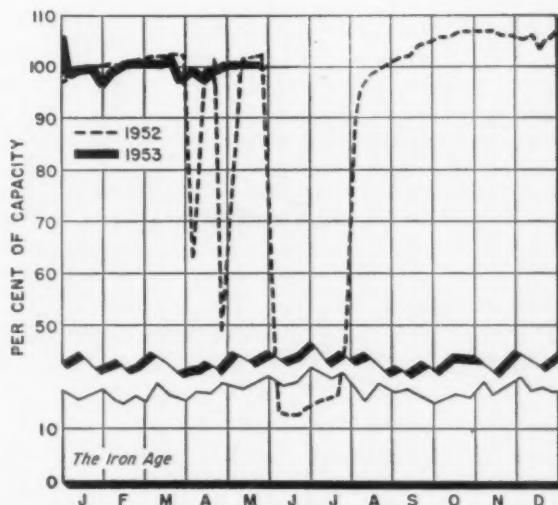


### District Operating Rates

District	Week of	
	May 24	May 17
Pittsburgh	100.0	99.0
Chicago	105.5	106.0
Philadelphia	98.0	98.0
Valley	102.0	102.0
West	109.0	108.0*
Cleveland	98.0	98.0
Buffalo	104.5	104.5
Detroit	108.0	108.0*
Birmingham (South)	103.5	103.5
Wheeling	104.0	104.0*
South Ohio River	90.0	87.0
St. Louis	89.5	89.5
East	77.0	81.5*
AGGREGATE	101.0	100.5

Beginning Jan. 1, 1953, operations are based on annual capacity of 117,522,470 net tons.

\* Revised



## Harvey Signs Third Round Contract

**First company in faltering third aluminum round . . . Others doubtful . . . Senate gets bill for aluminum duty suspension . . . Extend stockpiling to third quarter—By R. L. Hatschek.**

First government contract signed in the long-discussed third round of aluminum production facilities expansion is the new agreement between General Services Administration and Harvey Machine Co., Torrance, Calif.

GSA will have a 5-year option to buy at market price total production of primary metal to be turned out by Harvey at or near The Dalles, Ore. The company will build a 2-potline reduction plant with an annual capacity of 54,000 short tons per year. It also will construct an alumina plant with a capacity large enough to supply the reduction facility.

**Must Offer Metal . . .** Government purchasers must notify Harvey in advance as to the amount of total output the U. S. intends to buy. In the first 5 years of operation, two-thirds of the total less the amount the government wants, must be offered to non-integrated users.

During the next 15 years, Harvey must offer a flat 25 pct of its production to non-integrated firms.

**Still Waiting . . .** No similar purchase contract has been signed with either Olin Industries, Inc., or the Wheland Co., of Chattanooga, Tenn., both of which

have obtained fast tax writeoff certificates to permit entry into the primary aluminum field. These firms have figured prominently in the third round expansion goal, set at 200,000 tons of new capacity.

Both of these firms have indicated that they need more than fast tax writeoffs and guaranteed government contracts before they can get into the aluminum picture. They would like government financing—but this hinges on many factors. The entire third round expansion is currently under study in Washington to see how this may be fitted in. The trust busters still oppose further expansion of the Big Three without new firms in the business.

**Would End Duty . . .** A bill to suspend import duties on aluminum and aluminum alloys has been introduced in the Senate. Suspension would be for one year. The situation has been likened to the one in copper—but this bill says nothing about reimposition of the tariff if the price drops.

Aim of this bill is reported to be the assistance of small fabricators.

**Set Up Reserve . . .** Another move to aid independent U. S. fabricators was made by Aluminium Ltd. Its producing subsidiary, Aluminum Co. of Canada, will set

aside 110,000 tons of its production annually specifically for independents on this side of the border. This is to go on for the next several years and is to be over and above the yearly tonnage supplied them in the past.

Contracts totaling 275,000 tons for delivery in the next 6 years have already been signed. Under the new arrangement an additional 495,000 tons will be available during the years 1953 to 1959.

**Build Kitimat Market . . .** Ward Van Alstyne, president of Aluminum Import Corp., states the reason is to provide a secure and constant source of supply for the independents. Big expansion in Quebec plus huge expansion in British Columbia will provide the metal.

**Extend Stockpiling . . .** Orders have gone out for continuation of the government's aluminum stockpiling through at least the third quarter. Federal Mobilization Director Arthur S. Flemming says that national security requires this action.

Some aluminum producers have requested a halt over this period in order to allow mills to catch up on both military and civilian orders.

Mr. Flemming estimates that the amount of aluminum available during third quarter for civilian consumption—after military and AEC setasides—will be "substantially the same" as for the current quarter.

**Keep Up Production . . .** This is the highest level since Korea, he says, and should permit fabricators to maintain present production levels over the next several months.

All metal going into the stockpile during the third quarter is to come from special production, supported by direct government financial aid and already earmarked for stockpiling under purchase contracts.

### NONFERROUS METAL PRICES

(Cents per lb except as noted)

	May 20	May 21	May 22	May 23	May 25	May 26
Copper, electro, Conn. ....	29.75-	29.75-	29.75-	29.75-	29.75-	29.75-
	30.00	30.00	30.00	30.00	30.00	30.00
Copper, Lake delivered ....	.....	.....	.....	.....	.....	.....
Tin, Straits, New York .....	98.50	97.50	95.75	.....	97.25	97.25*
Zinc, East St. Louis .....	11.00	11.00	11.00	11.00	11.00	11.00
Lead, St. Louis .....	12.80	12.80	12.80	12.80	12.80	12.80

Note: Quotations are going prices.

\*Tentative

# MASTER ALLOYS and SPECIAL ALLOYS for STEEL MILL and FOUNDRY



Nickel Chrome 70/15 Ingot  
 Nickel Chrome 60/15 Ingot  
 Nickel Chrome 35/15 Ingot  
 Pure Copper Shot  
 Nickel Copper Shot 50/50  
 Nickel Copper Shot 70/30  
 60 Nickel 30 Copper  
 65 Nickel 30 Copper  
 Ferro-Nickel 50/50 Ingot and  
 Shot  
 Chromium Copper 5%  
 Chromium Copper 10%  
 Copper Iron 70/30  
 Copper Iron 90/10  
 Copper Iron 95/5

## ALTER

*Alloy Metal Division*

C O M P A N Y

1701 Rockingham Road, DAVENPORT, IOWA

Phone 6-2561

Teletype DV 588



# Nonferrous Prices

(Effective May 26, 1953)

## MILL PRODUCTS

(Cents per lb, unless otherwise noted)

### Aluminum

(Base 30,000 lb, f.o.b. ship. pt. frt. allowed)

Flat Sheet: 0.188-in., 2S, 3S, 32.9¢; 4S, 61S-O, 34.9¢; 52S, 37.2¢; 24S-O, 24S-OAL, 35.9¢; 75S-O, 75S-OAL, 43.6¢. 0.081-in., 2S, 3S, 34.1¢; 4S, 61S-O, 36.6¢; 52S, 38.9¢; 24S-O, 24S-OAL, 37.2¢; 75S-O, 75S-OAL, 45.7¢. 0.032-in., 2S, 3S, 35.9¢; 4S, 61S-O, 40.6¢; 52S, 43.5¢; 24S-O, 24S-OAL, 45.6¢; 75S-O, 75S-OAL, 57.0¢.

Plate, 1/4-in. and heavier: 2S-F, 3S-F, 30.9¢; 4S-F, 33.0¢; 52S-F, 34.7¢; 61S-O, 33.6¢; 24S-O, 24S-OAL, 35.4¢; 75S-O, 75S-OAL, 42.3¢.

Extruded Solid Shapes: Shape factors 1 to 5, 36.4¢ to 80.3¢; 12 to 14, 37.1¢ to 97.2¢; 24 to 26, 39.7¢ to 112.7¢; 36 to 38, 47.0¢ to 118.6¢.

Rod, Rolled: 1.064-in. to 4.5-in., 2S-F, 3S-F, 41.0¢ to 36.6¢; cold-finished, 0.375-in. to 3.499-in., 2S-F, 3S-F, 44.2¢ to 38.3¢.

Screw Machine Stock: Rounds, 11S-T3, 1/4 to 1 1/32-in., 58.4¢ to 45.9¢; 2 to 1 1/2-in., 45.3¢ to 42.6¢; 1 9/16 to 3-in., 42.0¢ to 39.3¢. Base 5000 lb.

Drawn Wire: Coiled 0.051 to 0.374-in., 2S, 43.2¢ to 31.7¢; 52S, 52.4¢ to 38.3¢; 17S-T4, 59.0¢ to 41.0¢; 61S-T4, 52.9¢ to 40.5¢.

Extruded Tubing: Rounds, 63S-T5, OD 1 1/4 to 2 in., 40.5¢ to 59.0¢; 2 to 4 in., 36.6¢ to 49.7¢; 4 to 6 in., 37.1¢ to 45.3¢; 6 to 9 in., 37.6¢ to 47.5¢.

Roofing Sheet: Flat, per sheet, 0.019-in., 28 x 72 in., \$1.247; x 96 in., \$1.662; x 120 in., \$2.077; x 144 in., \$2.494. Coiled sheet, per lb, 0.019 in. x 28 in., 30.8¢; 0.024 in. x 28 in., 29.3¢.

### Magnesium

(F.o.b. mill, freight allowed)

Sheet and Plate: FS1-O, 1/4 in., 66¢; 3/16 in., 68¢; 1/8 in., 70¢; B & S Gage 10, 71¢; 12, 75¢. Specification grade higher. Base: 30,000 lb.

Extruded Round Rod: M, diam 1/4 to 0.311 in., 77¢; 1/2 to 3/4 in., 60.5¢; 1 1/4 to 1.749 in., 56¢; 2 1/2 to 5 in., 51.5¢. Other alloys higher. Base up to 3/4 in. diam, 10,000 lb; 3/4 to 2 in., 20,000 lb; 2 in. and larger, 30,000 lb.

Extruded Solid Shapes, Rectangles: M. In weight per ft, for perimeters less than size indicated: 0.10 to 0.11 lb, 3.5 in., 65.3¢; 0.22 to 0.25 lb, 5.9 in., 62.3¢; 0.50 to 0.59 lb, 8.6 in., 59.7¢; 1.8 to 2.59 lb, 19.5 in., 56.8¢; 4 to 6 lb, 28 in., 52¢. Other alloys higher. Base, in weight per ft of shape: Up to 1/2 lb, 10,000 lb; 1/2 to 1.80 lb, 20,000 lb; 1.80 lb and heavier, 30,000 lb.

Extruded Round Tubing: M, 0.049 to 0.057 in. wall thickness; OD, 1/4 to 5/16 in., \$1.43; 5/16 to 3/4 in., \$1.29; 3/4 to 1 in., 96¢; 1 to 2 in., 79¢; 0.165 to 0.219 in. wall; OD, 1/4 to 1/2 in., 64¢; 1 to 2 in., 60¢; 3 to 4 in., 59¢. Other alloys higher. Base, OD: Up to 1 1/2 in., 10,000 lb; 1 1/2 to 3 in., 20,000 lb; over 3 in., 30,000 lb.

### Titanium

(100,000 lb base, f.o.b. mill)

Commercially pure and alloy grades: Sheets and strip, HR or CR, \$15; Plate, HR, \$12; Wire, rolled and/or drawn, \$10; Bar, HR or forged, \$6; Forgings, \$6.

### Nickel Monel, Inconel

(Base prices, f.o.b. mill)

"A" Nickel Monel		Inconel
Sheet, CR	86 1/2	67 1/2
Strip, CR	92 1/2	70 1/2
Rod, bar	82 1/2	65 1/2
Angles, HR	82 1/2	65 1/2
Plate, HR	84 1/2	66 1/2
Seamless Tube	115 1/2	100 1/2
Shot, blocks	57	57

### Copper, Brass, Bronze

(Freight included on 500 lb)

	Sheet	Rods	Extruded Shapes
Copper	48.51	48.51	50.58
Copper, h-r	50.48	46.83	48.08
Copper, drawn		48.08	
Low brass	45.99	45.68	
Yellow brass	42.87	42.56	
Red brass	47.11	46.80	
Naval brass	47.01	41.07	42.33
Leaded brass			39.95
Com. bronze	48.76	48.45	
Mang. bronze	50.73	44.62	46.18
Phos. bronze	70.50	70.75	
Muntz metal	44.91	40.47	41.72
NI silver, 10 pct	56.56	59.83	62.89

## PRIMARY METALS

(Cents per lb, unless otherwise noted)

Aluminum ingot, 99+%, 10,000 lb, freight allowed	20.50
Aluminum pig	19.50
Antimony, American, Laredo, Tex.	34.50
Beryllium copper, per lb conta'd Be	\$40.00
Beryllium aluminum 5% Be, Dollars per lb contained Be	\$72.75
Bismuth, ton lots	\$2.25
Cadmium, del'd	\$2.40
Cobalt, 97-99% (per lb)	\$2.40 to \$2.47
Copper, electro, Conn. Valley	29.50 to 30.00
Copper, Lake, delivered	
Gold, U. S. Treas. dollars per oz.	\$35.00
Indium, 99.8%, dollars per troy oz.	\$2.25
Iridium, dollars per troy oz.	\$175 to \$185
Lead, St. Louis	12.80
Lead, New York	13.00
Magnesium, 99.8+%, f.o.b. Freeport, Tex., 10,000 lb.	27.00
Magnesium, sticks, 100 to 500 lb.	45.00 to 47.00
Mercury, dollars per 76-lb. flask, f.o.b. New York	\$195 to \$197
Nickel electro, f.o.b. N. Y. warehouse	63.08
Nickel oxide sinter, at Copper Creek, Ont., contained nickel	56.25
Palladium, dollars per troy oz.	\$24.00
Platinum, dollars per troy oz.	\$90 to \$93
Silver, New York, cents per oz.	85.25
Tin, New York	95.75
Titanium, sponge	\$5.00
Zinc, East St. Louis	11.00
Zinc, New York	97.25
Zirconium copper, 50 pct	\$6.20

## REMETLED METALS

### Brass Ingot

(Cents per lb, delivered carloads)

85-5-5-5 ingot	
No. 115	26.00
No. 120	25.00
No. 123	24.00
80-10-10 ingot	
No. 305	30.00
No. 315	28.00
88-10-2 ingot	
No. 210	38.25
No. 215	34.75
No. 245	30.25
Yellow ingot	
No. 405	21.25
Manganese bronze	
No. 421	26.50

### Aluminum Ingot

(Cents per lb del'd, 30,000 lb and over)

95-5 aluminum-silicon alloys	
0.30 copper, max.	24.75-25.00
0.60 copper, max.	24.50-24.75
Piston alloys (No. 122 type)	22.75-23.20
No. 12 alum. (No. 2 grade)	22.00-22.75
108 alloy	22.50-23.00
195 alloy	22.80-24.00
13 alloy (0.60 copper max.)	24.50-24.75
ASX-679	22.50-23.00

### Steel deoxidizing aluminum, notch-bar granulated or shot

Grade 1—95-97 1/2%	23.25-24.00
Grade 2—92-95%	22.50-23.00
Grade 3—90-92%	21.50-22.50
Grade 4—85-90%	20.50-22.00

## ELECTROPLATING SUPPLIES

### Anodes

(Cents per lb, freight allowed, 5000 lb lots)

Copper	
Cast, oval, 15 in. or longer	45.14
Electrodeposited	37.98
Flat rolled	45.64
Brass, 80-20	
Cast, oval, 15 in. or longer	43.515
Zinc, flat cast	20.25
Ball, anodes	18.50
Nickel, 99 pct plus	
Cast	79.50
Roller, depolarized	80.50
Cadmium	\$2.15
Silver 999 fine, rolled, 100 oz lots, per troy oz, f.o.b. Bridgeport, Conn.	94 1/2

### Chemicals

(Cents per lb, f.o.b. shipping points)

Copper cyanide, 100 lb drum	63
Copper sulfate, 99.5 crystals, bbl.	12.85
Nickel salts, single or double, 4-100 lb bags, frt. allowed	30.00
Nickel chloride, 375 lb drum	38.00
Silver cyanide, 100 oz lots, per oz	75 1/2
Sodium cyanide, 96 pct domestic 200 lb drums	19.25
Zinc cyanide, 100 lb drum	47.7

## SCRAP METALS

### Brass Mill Scrap

(Cents per pound, add 1¢ per lb for shipments of 20,000 lb and over.)

	Heavy	Turnings
Copper	28%	27%
Yellow brass	21%	19%
Red brass	25%	24%
Comm. bronze	26%	25%
Mang. bronze	20%	19%
Brass rod ends	19%	

### Custom Smelters' Scrap

(Cents per pound carload lots, delivered to refinery)

No. 1 copper wire	24 1/2—25
No. 2 copper wire	23—23 1/2
Light copper	21 1/2—22
No. 1 composition	18—18 1/2
No. 1 comp. turnings	17 1/2—18
Roller brass	14
Brass pipe	15
Radiators	13 1/2—14

### Ingot Makers' Scrap

(Cents per pound, carload lots, delivered to refinery)

No. 1 copper wire	24 1/2—25
No. 2 copper wire	23—23 1/2
Light copper	21 1/2—22
No. 1 composition	18—18 1/2
No. 1 comp. turnings	17 1/2—18
Roller brass	14
Brass pipe	15
Radiators	13 1/2—14

### Aluminum

Mixed old cast	12 1/2—13 1/2
Mixed new clips	13—15
Mixed turnings, dry	13—14
Pots and pans	13—13 1/2

### Dealers' Scrap

(Dealers' buying price, f.o.b. New York in cents per pound)

### Copper and Brass

No. 1 heavy copper and wire	23—23 1/2
No. 2 heavy copper and wire	20 1/2—21
Light copper	18 1/2—19
New type shell cuttings	18 1/2—19
Auto radiators (unsweated)	13
No. 1 composition	16 1/2—17
No. 1 composition turnings	16—16 1/2
Unlined red car boxes	15—16
Cocks and faucets	15
Mixed heavy yellow brass	11 1/2
Old rolled brass	14
Brass pipe	16
New soft brass clippings	16 1/2—17 1/2
Brass rod ends	16—16 1/2
No. 1 brass rod turnings	15—16

### Aluminum

Alum. pistons and struts	6—6 1/2
Aluminum crankcases	9
2S aluminum clippings	13
Old sheet and utensils	8
Borings and turnings	6 1/2
Misc. cast aluminum	9
Dural clips (24S)	19

### Zinc

New zinc clippings	5 1/2
Old zinc	4 1/2
Zinc routings	2 1/2
Old die cast scrap	3 1/2

### Nickel and Monel

Pure nickel clippings	100
Clean nickel turnings	60—70
Nickel anodes	100
Nickel rod ends	100
New Monel clippings	33—35
Clean Monel turnings	25
Old sheet Monel	30—32
Nickel silver clippings, mixed	14
Nickel silver turnings, mixed	12

### Lead

Soft scrap, lead	10—10 1/2
Battery plates (dry)	5 1/2—5 3/4
Batteries, acid free	4—4 1/10

### Magnesium

Segregated solids	15—16
Castings	14—15

### Miscellaneous

Block tin	80
No. 1 pewter	65
No. 1 auto babbitt	12—12 1/2
Mixed common babbitt	15—16
Solder joints	45
Siphon tops	15 1/2
Small foundry type	13 1/2
Monotype	12 1/2
Lino. and stereotype	10 1/2
Electrotype	8
Hand picked type shells	4 1/2
Lino. and stereo. dross	4
Electro dross	4



## You know he's always on the job

Come hell or high water, there are some people who simply won't be denied the privilege of doing their duty. It's just a matter of basic character, disciplined by daily diligence . . . and, as much as anything else, a pride in maintaining a record that has been so painstakingly built.

This is the kind of duty that Bristol Brass men understand so well. They, too, have a name for "always being on the job" . . . and they won't stand for the smallest nick in that name . . . if determination, brains and resourcefulness

can help it. *And they have plenty of all three.* Try Bristol Brass service on your own sheet, rod and wire needs. You may encounter *two* new experiences . . . in quality, as well as in service.

. . .

The BRISTOL BRASS CORPORATION, makers of Brass since 1850 in Bristol, Conn. Offices or warehouses in Boston, Chicago, Cleveland, Dayton, Detroit, Los Angeles, Milwaukee, New York, Philadelphia, Pittsburgh, Providence, Rochester.

*"Bristol-Fashion" means* **Brass at its Best**

## Are Scrap Trade Winds Freshening?

**Feeling isn't unanimous, but many brokers feel market can only go up . . . Claim large tonnage orders will boost prices . . . Hope for pickup within mill buying in 30 days.**

It may just have been the good golfing weather over the weekend, but eastern scrap men thought they sniffed a freshening trade wind early this week. Other areas weren't so sure, but many in the trade expected more mill buying soon, and that at higher prices.

Brokers indicated they could fill only small orders at present price levels, would have to exceed current quotations if larger orders showed up. Good guess: Most grades would stay around present levels for about 30 days, then respond to expected increases in mill buying—so long as no steel strike developed.

**Pittsburgh**—The market appears to have hit a point of dead center. Some sources believe prices are leveling off. Consensus is that if consumers come into the market for substantial tonnages they will have to pay more than current quotations. What material is now moving is subject to rigid inspection at the mills. Rejects and regrades are common. A large consumer has released shipments after several weeks but gives no indication of coming into the market in near future. Blast furnace grades are weaker.

**Chicago**—With a spurt of mill buying last week, the Chicago market tightened considerably. Renewed hope extended as far down as the dealer level. Turnings, heretofore a dog, began to take on some strength. Opinion is divided among the brokers as to how long the increased tempo will last. The majority, while reporting increased activity and a slightly greater amount of scrap available, feel that steelmaking grades will continue to slip. Turnings sales of as high as \$24 were cropping up. Electric furnace failed to respond to the quickening in blast furnace and steel grades.

**Philadelphia**—General feeling in the trade here is that the market has leveled off, though some think there may be a slight further descent before bottom is touched. Blast furnace grades are a bit weaker this week and chemical borings have dropped \$3 on new buying for June. A few cast items slipped a bit.

**New York**—The market this week is very quiet with few sales being made and little material coming in to dealers' yards. Some members of the trade, heartened by the arrested skid, call the market a bit firmer—actually it's a bit less weak. General feeling is that mill buying will probably be resumed in heavier quantity within the next 20 to 40 days.

**Detroit**—Secondary grades appeared to be stabilizing at present price levels as buyers feel out the market. No. 1 grades showed some weakness. Electric furnaces dropped prices on bundles and plate and were able to buy at price offered. There is little prospect of a strengthening market while list scrap is filling most of mill requirements.

**Cleveland**—Not much activity is reported in this market. Bidding on automotive lists at press time was expected to provide more concrete indications of future trends. Sentiment is wavering but most dealers and brokers feel prices can't go too much lower. Market strength will pick up in the opinion of many if a steel strike is avoided. Low phos dropped \$1 to \$43 on the basis of a sale, but list bidding could erase the present price.

**Birmingham**—Brokers report difficulties filling orders received the first of this month because scrap is not coming into dealers' yards. Dealers have cut prices in accordance with reductions by mills and say this is drying up their supply. One broker said he had to call nearly 100 dealers before he could fill a fairly large order received from a northern mill 2 weeks ago. Structural and plate

prices were down \$3 this week, other prices unchanged.

**St. Louis**—While there has been no buying of consequence by consumers of scrap in St. Louis, there is a breath of strength in the market. Railroad specialties have been strong, without support of mill buying, giving rise to reports of speculative buying. There are reports of drying up of scrap from the rural areas, and the mills are watching the situation closely.

**Cincinnati**—Blast furnace grades lost more ground this week as machine shop turnings went down \$2 to \$19. Mixed borings and turnings and cast iron borings eased off \$1 to \$21. Short turnings stayed firm at \$24 because of openhearth demand. Most observers believe at least three consumers will come into the June market. Installation of new continuous strip mill is expected to increase Armco's intake of purchased scrap. Movement of scrap into dealer's yards is reportedly off from 50 pct to 90 pct.

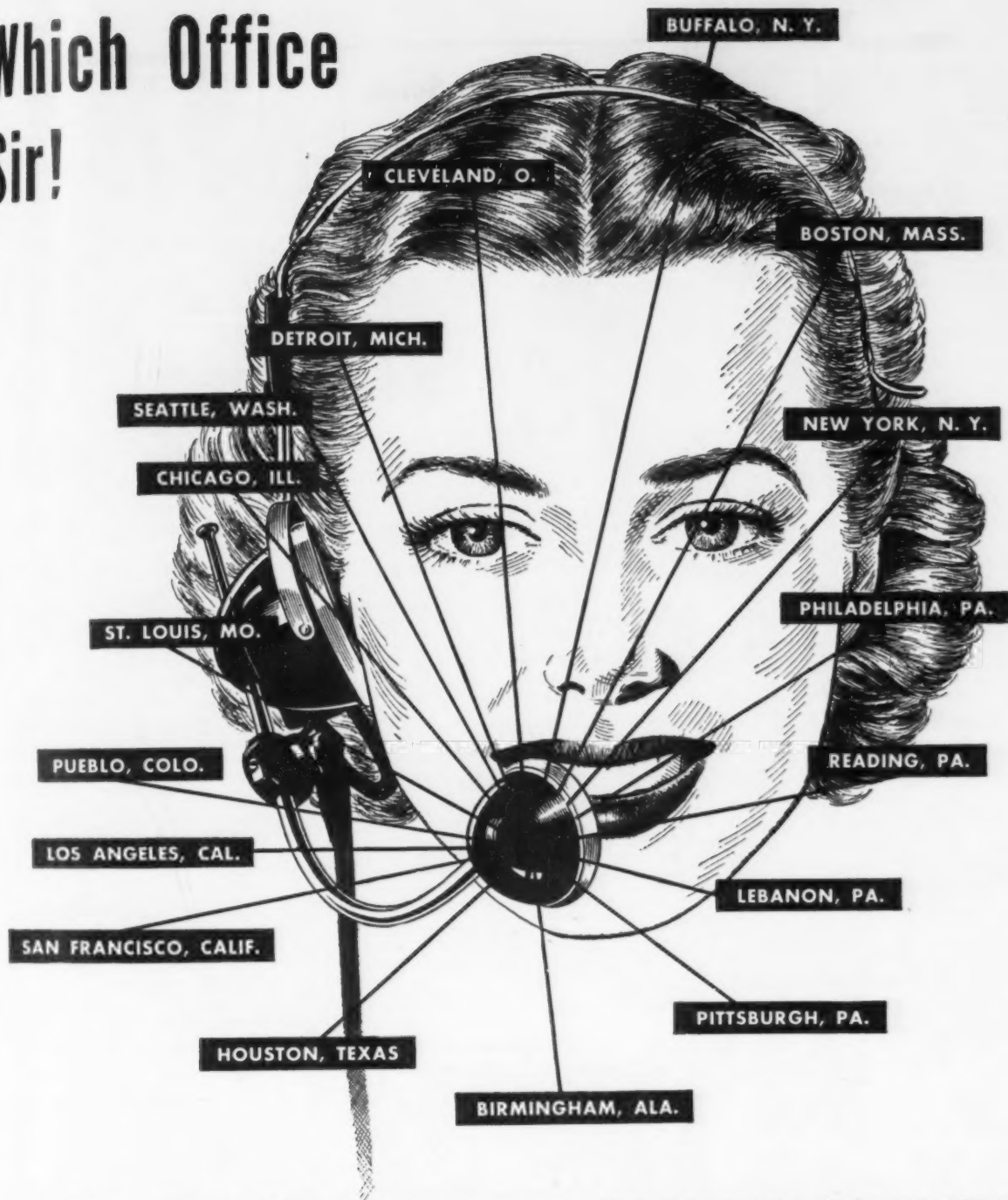
**Buffalo**—Although prices were unchanged, weakness gripped the scrap market as one of leading mills placed an embargo on all shipments for the remainder of the month. Another mill continued to hold up shipments of turnings. As a result supplies are backing up in dealers' yards. Water shipments amounted to approximately 15,000 tons.

**Boston**—Scrap trade in the New England market remains dull this week with practically unchanged prices. There is only one buyer in the market for good openhearth scrap—and that means good, as inspections are tough. Cast items still show no signs of life.

**West Coast**—Scrap steel prices will drop \$1 more per ton across the board in San Francisco for June delivery, and up to \$4 in Seattle. And mills generally feel prices have touched bottom for a time at least. New drop came after experience in May when flow to mills continued despite major price drop. Dealer stocks remain below normal, but movement has continued healthy. Considerable tonnage of Army and Navy scrap has been sold in San Francisco area. Monthly San Francisco market consumption of steel and cast about 45,000 to 50,000 tons. Cast market holding firm due to perk-up in foundry business.



# Which Office Sir!

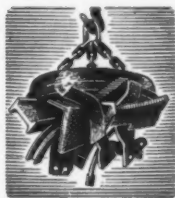


CONSULT OUR NEAREST OFFICE FOR THE PURCHASE AND SALE OF SCRAP

## LURIA BROTHERS AND COMPANY, INC.

MAIN OFFICE  
LINCOLN-LIBERTY BLDG.  
Philadelphia 7, Penna.

PLANTS  
LEBANON, PENNA. DETROIT (ECORSE), MICHIGAN  
READING, PENNA. MODENA, PENNA. PITTSBURGH, PENNA.  
ERIE, PENNA.



OFFICES  
BIRMINGHAM, ALA. DETROIT, MICH. PITTSBURGH, PENNA.  
BOSTON, MASS. HOUSTON, TEXAS PUEBLO, COLORADO  
BUFFALO, N. Y. LEBANON, PENNA. READING, PENNA.  
CHICAGO, ILLINOIS LOS ANGELES, CAL. ST. LOUIS, MO.  
CLEVELAND, OHIO NEW YORK, N. Y. SAN FRANCISCO, CAL.  
SEATTLE, WASH.

## LEADERS IN IRON AND STEEL SCRAP SINCE 1889

May 28, 1953

155

# Scrap Prices

(Effective May 26, 1953)

## Pittsburgh

No. 1 hvy. melting	\$38.00 to \$39.00
No. 2 hvy. melting	34.00 to 35.00
No. 1 bundles	38.00 to 39.00
No. 2 bundles	31.00 to 32.00
Machine shop turn	24.00 to 25.00
Mixed bor. and ms. turns	24.00 to 25.00
Shoveling turnings	29.00 to 30.00
Cast iron borings	29.00 to 30.00
Low phos. punch'gs, plate	45.00 to 46.00
Heavy turnings	38.00 to 39.00
No. 1 RR. hvy. melting	43.00 to 44.00
Scrap rails, random lgth.	45.00 to 46.00
Rails 2 ft and under	51.00 to 52.00
RR. steel wheels	50.00 to 51.00
RR. spring steel	50.00 to 51.00
RR. couplers and knuckles	50.00 to 51.00
No. 1 machinery cast.	49.00 to 50.00
Cupola cast.	40.00 to 41.00
Heavy breakable cast.	37.00 to 38.00
Malleable	44.00 to 45.00

## Chicago

No. 1 hvy. melting	\$36.00 to \$38.00
No. 2 hvy. melting	34.00 to 35.00
No. 1 factory bundles	38.00 to 40.00
No. 1 dealers' bundles	36.00 to 38.00
No. 2 dealers' bundles	31.00 to 32.00
Machine shop turn.	18.00 to 20.00
Mixed bor. and turn.	18.00 to 20.00
Shoveling turnings	19.00 to 21.00
Cast iron borings	18.00 to 20.00
Low phos. forge crops	43.00 to 44.00
Low phos. punch'gs, plate	39.00 to 41.00
Low phos. 3 ft and under	40.00 to 41.00
No. 1 RR. hvy. melting	40.00 to 41.00
Scrap rails, random lgth.	43.00 to 44.00
Rerolling rails	46.00 to 48.00
Rails 2 ft and under	49.00 to 50.00
Locomotive tires, cut	45.00 to 46.00
Cut bolsters & side frames	44.00 to 45.00
Angles and splice bars	45.00 to 47.00
RR. steel car axles	49.00 to 50.00
RR. couplers and knuckles	45.00 to 47.00
No. 1 machinery cast.	41.00 to 43.00
Cupola cast.	37.00 to 39.00
Heavy breakable cast.	31.00 to 33.00
Cast iron brake shoes	35.00 to 36.00
Cast iron car wheels	39.00 to 41.00
Malleable	39.00 to 40.00
Stove plate	32.00 to 33.00

## Philadelphia Area

No. 1 hvy. melting	\$40.00 to \$41.00
No. 2 hvy. melting	36.00 to 37.00
No. 1 bundles	40.00 to 41.00
No. 2 bundles	29.00 to 31.00
Machine shop turn.	26.00 to 28.00
Mixed bor., short turn.	29.00 to 31.00
Shoveling turnings	30.00 to 32.00
Clean cast chem. borings	38.50 to 39.00
Low phos. 5 ft and under	43.50 to 44.50
Low phos. 2 ft and under	45.00 to 46.00
Low phos. punchings	46.50 to 46.50
Elec. furnace bundles	43.50 to 44.50
Heavy turnings	39.50 to 40.50
RR. steel wheels	49.00 to 50.00
RR. spring steel	49.00 to 50.00
Rails 18 in. and under	55.00 to 56.00
Cupola cast.	38.00 to 40.00
Heavy breakable cast.	41.00 to 42.00
Cast iron carwheels	46.00 to 47.00
Malleable	46.00 to 47.00
Unstripped motor blocks	28.00 to 29.00
No. 1 machinery cast.	47.00 to 48.00
Charging box cast.	39.00 to 41.00

## Cleveland

No. 1 hvy. melting	\$38.00 to \$39.00
No. 2 hvy. melting	34.00 to 35.00
No. 1 bundles	38.00 to 39.00
No. 2 bundles	33.00 to 34.00
No. 1 busheling	38.00 to 39.00
Machine shop turn.	21.00 to 22.00
Mixed bor. and turn.	26.00 to 27.00
Shoveling turnings	26.00 to 27.00
Cast iron borings	26.00 to 27.00
Low phos. 2 ft and under	42.00 to 43.00
Drop forge flashings	38.00 to 39.00
No. 1 RR. hvy. melting	45.00 to 46.00
Rails 3 ft and under	52.00 to 53.00
Rails 18 in. and under	55.00 to 56.00
Railroad grate bars	40.00 to 41.00
Steel axle turnings	38.00 to 39.00
Railroad cast	47.00 to 48.00
No. 1 machinery cast.	47.00 to 48.00
Stove plate	43.00 to 44.00
Malleable	48.00 to 49.00

## Iron and Steel Scrap

Going prices of iron and steel scrap as obtained in the trade by THE IRON AGE based on representative tonnages. All prices are per gross ton delivered to consumer unless otherwise noted.

## Youngstown

No. 1 hvy. melting	\$38.00 to \$39.00
No. 2 hvy. melting	34.00 to 35.00
No. 1 bundles	38.00 to 39.00
No. 2 bundles	31.00 to 32.00
Machine shop turn.	23.00 to 24.00
Shoveling turnings	26.00 to 27.00
Cast iron borings	26.00 to 27.00
Low phos. plate	46.00 to 47.00

## Buffalo

No. 1 hvy. melting	\$40.50 to \$41.50
No. 2 hvy. melting	38.00 to 39.00
No. 1 busheling	40.50 to 41.50
No. 1 bundles	40.50 to 41.50
No. 2 bundles	36.00 to 36.50
Machine shop turn.	23.00 to 24.00
Mixed bor. and turn.	27.00 to 28.00
Shoveling turnings	29.00 to 30.00
Cast iron borings	27.00 to 28.00
Low phos. plate	44.00 to 45.00
Scrap rails, random lgth.	45.75 to 46.75
Rails 2 ft and under	51.75 to 52.75
RR. steel wheels	50.75 to 51.75
RR. spring steel	50.75 to 51.75
RR. couplers and knuckles	50.75 to 51.75
No. 1 machinery cast.	42.00 to 43.00
No. 1 cupola cast.	38.00 to 39.00

## Detroit

Brokers' buying prices per gross ton, on cars:	
No. 1 hvy. melting	\$32.00 to \$33.00
No. 2 hvy. melting	26.00 to 27.00
No. 1 bundles, openhearth	36.00 to 37.00
No. 2 bundles	23.00 to 24.00
Heavy turnings	27.00 to 28.00
New busheling	34.00 to 35.00
Drop forge flashings	34.00 to 35.00
Machine shop turn.	14.00 to 15.00
Mixed bor. and turn.	17.00 to 18.00
Shoveling turnings	17.00 to 18.00
Cast iron borings	17.00 to 18.00
Electric furnace, bundles	36.00 to 37.00
Low phos. punch'gs, plate	36.00 to 37.00
No. 1 cupola cast	44.00
Heavy breakable cast.	36.00
Stove plate	37.00
Automotive cast.	44.00

## St. Louis

No. 1 hvy. melting	\$34.00 to \$35.00
No. 2 hvy. melting	31.00 to 32.00
No. 2 bundled sheets	28.00 to 30.00
Machine shop turn.	15.00 to 16.00
Shoveling turnings	17.00 to 19.00
Cast iron borings	11.00 to 13.00
Rails, random lengths	41.00 to 42.00
Rails 18 in. and under	49.00 to 51.00
Locomotive tires, uncut	43.00 to 44.00
Angles and splice bars	43.00 to 44.00
Std. steel car axles	46.00 to 48.00
RR. spring steel	43.00 to 44.00
Cupola cast.	39.00 to 41.00
Hvy. breakable cast.	30.00 to 32.00
Cast iron brake shoes	38.00 to 39.00
Stove plate	37.00 to 38.00
Cast iron car wheels	44.00 to 45.00
Malleable	35.00 to 36.00
Unstripped motor blocks	33.00 to 34.00

## New York

Brokers' buying prices per gross ton, on cars:	
No. 1 hvy. melting	\$33.00 to \$34.00
No. 2 hvy. melting	29.00 to 29.50
No. 2 bundles	25.00 to 26.00
Low phos. 2 ft and less	37.00 to 38.00
Machine shop turn.	19.00 to 20.00
Mixed bor. and turn.	19.00 to 20.00
Shoveling turnings	21.50 to 22.50
Clean cast chem. borings	32.00 to 33.00
No. 1 machinery cast.	42.00 to 43.00
Mixed yard cast.	33.00 to 34.00
Charging box cast.	34.00 to 35.00
Heavy breakable cast.	34.00 to 35.00
Unstripped motor blocks	22.00 to 23.00

## Birmingham

No. 1 hvy. melting	\$29.50 to \$30.50
No. 2 hvy. melting	27.00 to 28.00
No. 1 bundles	29.50 to 30.50
No. 2 bundles	25.00 to 26.00
No. 1 busheling	29.50 to 30.50
Machine shop turn.	20.75 to 21.75
Shoveling turnings	22.75 to 23.75
Cast iron borings	22.75 to 23.75
Electric furnace bundles	32.00 to 33.00
Bar crops and plate	39.00 to 40.00
Structural and plate, 2 ft.	36.00 to 37.00
No. 1 RR. hvy. melting	35.00 to 36.00
Scrap rails, random lgth.	41.00 to 42.00
Rerolling rails	45.00 to 46.00
Rails, 18 in. and under	45.00 to 46.00
Angles & splice bars	45.00 to 46.00
Std. steel axles	45.00 to 46.00
No.1 cupola cast.	38.00 to 39.00
Stove plate	34.00 to 35.00
Cast iron car wheels	46.00 to 47.00
Charging box cast.	30.00 to 31.00
Heavy breakable	30.00 to 31.00
Unstripped motor blocks	32.00 to 33.00
Mashed tin cans	17.00 to 18.00

## Boston

Brokers' buying prices per gross ton, on cars:	
No. 1 hvy. melting	\$38.00 to \$39.00
No. 2 hvy. melting	\$25.00 to 26.00
No. 1 bundles	30.25
No. 2 bundles	22.00 to 23.00
No. 1 busheling	29.00 to 31.00
Elec. furnace, 3 ft & under	33.25
Machine shop turn.	16.00 to 17.00
Mixed bor. and short turn.	20.00
Shoveling turnings	20.00 to 21.00
Clean cast chem. borings	31.17
No. 1 machinery cast	30.00 to 31.00
Mixed cupola cast.	25.00 to 26.00
Heavy breakable cast.	25.00 to 26.00
Stove plate	26.00 to 27.00
Unstripped motor blocks	22.00

## Cincinnati

Brokers' buying prices per gross ton, on cars:	
No. 1 hvy. melting	\$38.00 to \$39.00
No. 2 hvy. melting	35.00 to 36.00
No. 1 bundles	38.00 to 39.00
No. 2 bundles	31.00 to 32.00
Machine shop turn.	18.00 to 19.00
Mixed bor. and turn.	20.00 to 21.00
Shoveling turnings	23.00 to 24.00
Cast iron borings	20.00 to 21.00
Low phos. 18 in. & under	46.00 to 47.00
Rails, random lengths	41.00 to 42.00
Rails, 18 in. and under	50.00 to 51.00
No. 1 cupola cast.	41.00 to 42.00
Hvy. breakable cast.	37.00 to 38.00
Drop broken cast.	48.00 to 49.00

## San Francisco

No. 1 hvy. melting	\$29.00
No. 2 hvy. melting	25.00
No. 1 bundles	26.00
No. 2 bundles	23.00
No. 3 bundles	19.00
Machine shop turn.	11.00
Cast iron borings	15.00
No. 1 RR. hvy. melting	29.00
No. 1 cupola cast.	\$39.00 to \$40.00

## Los Angeles

No. 1 hvy. melting	\$24.00
No. 2 hvy. melting	20.00
No. 1 bundles	23.00
No. 2 bundles	20.00
No. 3 bundles	16.00
Mach. shop turn.	8.00
Shoveling turnings	12.00
Cast iron borings	12.00
Elec. fur. 1 ft and under	29.00
No. 1 RR. hvy. melting	24.00
No. 1 cupola cast.	39.00

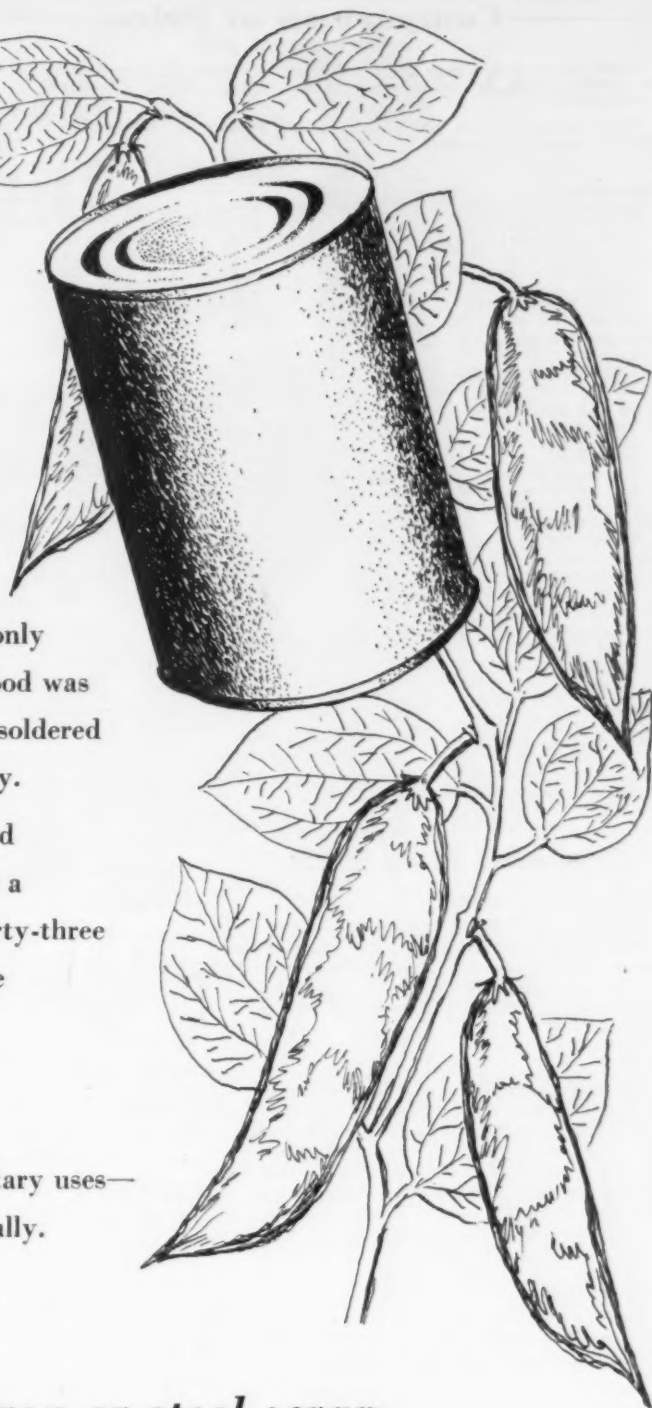
## Seattle

No. 1 hvy. melting	\$33.00
No. 2 hvy. melting	29.00
No. 1 bundles	32.00
No. 2 bundles	26.00
No. 1 cupola cast.	37.00
Mixed yard cast.	35.00

## Hamilton, Ont.

No. 1 hvy. melting	\$35.50
No. 1 bundles	35.50
No. 2 bundles	35.50
Mechanical bundles	35.50
Mixed steel scrap	31.50
Bushelings	30.50
Bush., new fact. prep'd.	32.50
Bush., new fact. unprep'd.	32.50
Short steel turnings	29.50
Mixed bor. and turn.	29.50
Rails, remelting	35.50
Rails, rerolling	44.80
Cast scrap	50.00

# for beans and bullets



Until the last century, man preserved food only by drying, smoking or salting. The loss of food was terrific . . . Then came tin containers, hand soldered—with a peak production of sixty cans a day.

Now, high speed machines manned by skilled workers produce four-hundred precision tins a minute—an American total of more than thirty-three billion cans a year—to package and preserve over twenty-five hundred different food and non-food products.

Cans for beans and bullets—steel products for a vast number of other civilian and military uses—demand thirty-six million tons of scrap annually.

*For the purchase or sale of iron or steel scrap . . .*

*phone or write "Your Chicago Broker"*



231 S. La Salle St., Chicago

Telephone ANdover 3-3900



## Comparison of Prices

(Effective May 26, 1953)

Steel prices on this page are the average of various f.o.b. quotations of major producing areas: Pittsburgh, Chicago, Gary, Cleveland, Youngstown.

Price advances over previous week are printed in Heavy Type; declines appear in *Italics*.

	May 26 1953	May 19 1953	Apr. 28 1953	May 27 1952
<b>Flat-Rolled Steel: (per pound)</b>				
Hot-rolled sheets	3.775¢	3.775¢	3.775¢	3.60¢
Cold-rolled sheets	4.575	4.575	4.575	4.35
Galvanized sheets (10 ga.)	5.075	5.075	5.075	4.80
Hot-rolled strip	3.725	3.725	3.725	3.50
Cold-rolled strip	5.20	5.20	5.20	4.75
Plate	3.90	3.90	3.90	3.70
Plates wrought iron	9.00	9.00	9.00	7.85
Stainl's C-R strip (No. 302)	39.75	39.75	39.75	36.75
<b>Tin and Terplate: (per base box)</b>				
Tinplate (1.50 lb.) cokes	\$8.95	\$8.95	\$8.95	\$8.70
Tinplate, electro (0.50 lb.)	7.65	7.65	7.65	7.40
Special coated mfg. ternes	7.75	7.75	7.75	7.50
<b>Bars and Shapes: (per pound)</b>				
Merchant bars	3.95¢	3.95¢	3.95¢	3.70¢
Cold finished bars	4.925	4.925	4.925	4.55
Alloy bars	4.675	4.675	4.675	4.30
Structural shapes	3.85	3.85	3.85	3.65
Stainless bars (No. 302)	34.00	34.00	34.00	31.50
Wrought iron bars	10.05	10.05	10.05	9.50
<b>Wire: (per pound)</b>				
Bright wire	5.225¢	5.225¢	5.225¢	4.85¢
<b>Rails: (per 100 lb.)</b>				
Heavy rails	\$4.075	\$4.075	\$3.775	\$3.60
Light rails	5.00	5.00	4.25	4.00
<b>Semifinished Steel: (per net ton)</b>				
Rerolling billets	\$59.00	\$59.00	\$59.00	\$56.00
Slabs, rerolling	59.00	59.00	59.00	56.00
Forging billets	70.50	70.50	70.50	65.00
Alloy blooms, billets, slabs	76.00	76.00	76.00	70.00
<b>Wire Rod and Skelp: (per pound)</b>				
Wire rods	4.325¢	4.325¢	4.325¢	4.10¢
Skelp	3.55	3.55	3.55	3.35

Composite: (per pound)

Finished steel base price ..... 4.417¢ 4.390¢ 4.376¢ 4.181¢

	May 26 1953	May 19 1953	Apr. 28 1953	May 27 1952
<b>Pig Iron: (per gross ton)</b>				
Foundry, del'd Phila.	\$60.60	\$60.60	\$60.60	\$58.19
Foundry, Valley	55.00	55.00	55.00	52.50
Foundry, Southern, Cin'ti	58.93	58.93	58.93	55.50
Foundry, Birmingham	51.38	51.38	51.38	48.50
Foundry, Chicago	55.00	55.00	55.00	52.50
Basic del'd Philadelphia	59.77	59.77	59.77	57.27
Basic, Valley furnace	54.50	54.50	54.50	52.00
Malleable, Chicago	55.00	55.00	55.00	52.50
Malleable, Valley	55.00	55.00	55.00	52.50
Ferromanganese	226.99	226.99	226.23	186.25

† The switching charge for delivery to foundries in the Chicago district is \$1 per ton.

‡ Average of U. S. Prices quoted on Ferroalloy pages.

Composite: (per gross ton)

Pig iron	\$55.26	\$55.26	\$55.26	\$52.77
<b>Scrap: (per gross ton)</b>				
No. 1 steel, Pittsburgh	\$38.50	\$38.50	\$39.50	\$43.00*
No. 1 steel, Phila. area	40.50	40.50	41.50	41.50*
No. 1 steel, Chicago	37.00	35.50	37.00	41.50*
No. 1 bundles, Detroit	36.50	36.50	40.25	41.50*
Low phos., Youngstown	46.50	47.50	47.50	46.50*
No. 1 mach'y cast, Pittsburgh	49.50	49.50	49.50	52.75
No. 1 mach'y cast, Philadel'a.	47.50	47.50	47.50	52.00*
No. 1 mach'y cast, Chicago	42.00	41.00	44.50	45.00

\* Basing pt., less broker's fee. † Shipping pt., less broker's fee. Delivered prices, including broker's fee, unless otherwise noted.

Composite: (per gross ton)

No. 1 heavy melting scrap	\$38.67	\$38.17	\$39.33	\$42.60
<b>Coke, Connellsville: (per net ton at oven)</b>				
Furnace coke, prompt	\$14.75	\$14.75	\$14.75	\$14.75
Foundry coke, prompt	17.25	17.25	17.25	17.75
<b>Nonferrous Metals: (cents per pound to large buyers)</b>				
Copper, electrolytic, Conn.	29.875¢	29.875¢	29.75¢	24.50
Copper, Lake, Conn.	.....	.....	.....	24.825
Tin, Straits, New York	97.25¢	\$1.00*	96.50	\$1.215¢
Zinc, East St. Louis	11.00	11.00	11.00	10.60
Lead, St. Louis	12.80	12.80*	11.80	14.80
Aluminum, virgin ingot	20.50	20.50	20.50	19.00
Nickel, electrolytic	63.08	63.08	63.08	59.58
Magnesium, ingot	27.00	27.00	27.00	24.80
Antimony, Laredo, Tex.	34.50	34.50	34.50	39.00

† Tentative. ‡ Average. \* Revised.

## Composite Price Notes

### Finished Steel Composite

Weighted index based on steel bars, shapes, plates, wire, rails, black pipe, hot and cold-rolled sheets and strips, representing major portion of finished steel shipment. Index recapitulated in Aug. 28, 1941, issue and in May 12, 1949.

Starting with the issue of May 12, 1949, the weighted finished steel composite was revised for the years 1941 to date. The weights used are based on the average product shipments for the 7 years 1937 to 1940 inclusive and 1946 to 1948 inclusive. The use of quarterly figures has been eliminated because it was too sensitive. (See p. 139 of May 12, 1949, issue.)

### Pig Iron Composite

Based on averages for basic iron at Valley furnaces and foundry iron at Chicago, Philadelphia, Buffalo, Valley and Birmingham.

### Scrap Steel Composite

Average of No. 1 heavy melting steel scrap delivered to consumers at Pittsburgh, Philadelphia and Chicago.

## Warehouse Price Notes

Base Quantities (Standard unless otherwise keyed): Cold finished bars; 2000 lb or over. Alloy bars; 1000 to 1999 lb. All others; 2000 to 9999 lb. All HR products may be combined for quantity. All galvanized sheets may be combined for quantity. CR sheets may not be combined with each other or with galvanized sheets, for quantity.

Exceptions: (1) 500 to 1499 lb, (2) 6000 lb or over, (3) 450 to 1499 lb, (4) 2000 to 3999 lb.

## WAREHOUSES

Base price, f.o.b., dollars per 100 lb.

HOUSES		Sheets			Strip		Plates	Shapes	Bars		Alloy Bars			
Cities	City Delivery Charge	Hot-Rolled	Cold-Rolled (15 gage)	Galvanized (10 gage)	Hot-Rolled	Cold-Rolled		Standard Structural	Hot-Rolled	Cold-Finished	Hot-Rolled A 4615 As rolled	Hot-Rolled A 4140 Annealed	Cold-Drawn A 4615 As rolled	Cold-Drawn A 4140 Annealed
Baltimore	\$.20	5.81	7.17	7.38-8.04	6.42			6.05	6.47	6.41	7.18-7.43			
Birmingham	.15	5.80	6.65	7.70	5.80			6.10	5.95	5.80	7.85			
Boston	.20	6.45	7.35	8.34	6.55	8.50		6.75	6.56	6.42	7.49	10.85	11.15	12.85
Buffalo	.20	6.52	7.71	8.39				6.80		6.57	7.64		11.17	13.18
Chicago	.20	5.77	6.60	8.31	6.00			6.30	6.08	6.05		10.70	11.00	12.70
Chicago	.20	5.80	6.65		6.21			6.40	6.15				11.07	13.07
Chicago	.20	5.80	6.65	7.90	5.83			5.95	5.95	5.83	6.81		10.65	12.65
Cincinnati	.20	5.81			5.84			6.00			7.025			
Cincinnati	.20	6.13	6.72	8.21	6.14			6.47	6.42		7.32		11.07	13.07
Cleveland	.20	5.80	6.65	7.54	6.00			6.12	6.28	5.89	6.91		10.79	12.79
Cleveland	.20	5.81			6.01			6.17		6.04	7.10			
Denver		7.17	8.23	9.60	7.43	8.90		7.37	7.50	7.61	8.24			
Denver		7.39			7.69			7.54	7.80	7.71	8.48			
Detroit	.20	5.99	6.81	8.59	6.13	7.29		6.45	6.42	6.12	7.23	10.72	12.72	12.92
Detroit	.20	6.00	6.90		6.34	7.85		6.47	6.69	6.47	7.32			
Houston	.20	6.35	7.00	8.62	6.70			6.60	6.60	6.75	9.00	11.90	11.35	13.60
Houston	.20	6.74	7.78	8.70	6.95			6.85	6.82	7.00	9.35	11.90	11.90	13.90
Kansas City	.20	6.47	7.31	8.62	6.51			6.62	6.62	6.50	7.57		11.32	
Kansas City	.20				6.67			6.67						
Los Angeles	.20	6.60	8.45	8.45	6.70	9.15		6.70	6.60	6.60	8.60		12.05	14.60
Los Angeles	.20							9.40			9.40			
Memphis	.10	6.56	7.40		6.98			6.71	6.71	6.59	7.77			
Milwaukee	.20	5.97	6.82	8.07	6.00			6.12	6.12	6.00	7.08		10.82	12.82
Milwaukee	.20	6.16			6.20			6.36	6.31	6.31	7.30			
New Orleans	.15	6.28	7.12		6.32	8.32		6.43	6.43	6.31	7.85			
New York	.30	6.11	7.27	8.07	6.56	8.94		6.60	6.34	6.59	7.71	10.68	10.91	12.97
New York	.30	6.62	7.41	8.53	6.72			6.88	6.39	6.74	7.90	10.74	11.04	13.04
Norfolk	.20	6.75			7.30			6.65	6.65	6.55	8.30			
Philadelphia	.25	6.11	7.13	7.95	6.45			6.24	6.17	6.62			10.67	12.79
Philadelphia	.25			8.30	6.46			6.28					10.79	
Pittsburgh	.20	5.80	6.65	7.90	5.94			5.95	5.95	5.83	6.66		10.65	12.65
Pittsburgh	.20	5.81			5.97			6.00		5.98	7.12			
Portland	.20	7.80	9.05	9.15	7.50			7.05	7.25	7.25	9.40			
Portland	.20			9.30										
Salt Lake City	.20	8.30		10.90	8.45			7.85	8.00	8.40	9.35			
San Francisco	.15	6.90	8.20	9.50	6.75	9.25		6.75	6.50	6.65	8.40		12.05	14.60
San Francisco	.15				9.70						9.40			
Seattle	.20	7.16	8.24	9.20	7.20			7.04	6.63	7.08	9.37		11.70	13.70
Seattle	.20	7.36	8.84	9.40	7.45			7.19	6.83					
St. Louis	.20	6.10	6.94	8.20	6.14	8.27		6.35	6.35	6.13	7.21	10.65	10.95	12.65
St. Louis	.20	6.11	6.95			8.39		6.40			7.43			
St. Paul	.15	6.47	7.31	8.56	6.50			6.61	6.61	7.57	7.32		11.31	
St. Paul	.15		7.61					6.66			7.57			

10-year foundation for  
customer-attracting finishes...



Beverage cooler manufactured by Mundeau Mfg. Co., Columbus, Ohio, using Republic Electro Paintlok Sheets for the enamel-finished exterior and the natural-finish inner liner. Trim is Republic Enduro Stainless Steel.

*Republic*

## ELECTRO PAINTLOK SHEETS

The makers of this beverage cooler estimate that its bright red finish still will be pulling in customers after 10 years of service, outdoors or in.

The body and inside liner of the cabinet are Republic Electro Paintlok . . . the zinc-coated steel sheet that is chemically treated to *take* paints, lacquers, and synthetic enamels *smoothly* . . . and *hold* them for years, even under hard service and severe exposure.

What's more . . . the tight zinc coat helps protect the steel and the enameled finish from creeping rust and corrosion even if the painted surface should be scratched.

When you receive Republic Electro Paintlok Sheets, they are ready to paint after a simple cleaning to remove shipping grime. Even after drawing to shape, these sheets require only degreasing before painting. The zinc coating clings tight, is not cracked or peeled by normal fabrication procedures.

Get all the facts on Republic Electro Paintlok Sheets for your fabricated steel products that need to look better longer. Ask for Booklet 525.

REPUBLIC STEEL CORPORATION  
GENERAL OFFICES, CLEVELAND 1, OHIO  
Export Department:  
Chrysler Building, New York 17, N. Y.

*Republic*  
**ELECTRO ZINC PLATED SHEETS**  
*Electro Paintlok • Electro Zincbond*

Other Republic Products include Carbon, Alloy and Stainless Steels—Sheets, Strip, Plates, Bars, Pipe, Tubing, Bolts and Nuts, Wire

IRON AGE		<i>Italics identify producers listed in key at end of table. Base prices, f.o.b. mill, in cents per lb., unless otherwise noted. Extras apply.</i>												
<b>STEEL PRICES</b> (Effective May 26, 1953)		INGOTS		BILLETS, BLOOMS, SLABS			PIPE SKELP	PIL-ING	SHAPES STRUCTURALS		STRIP			
		Carbon Forging Net Ton	Alloy Net Ton	Carbon Rerolling Net Ton	Carbon Forging Net Ton	Alloy Net Ton		Sheet Steel	Carbon	Hi Str. Low Alloy	Hot-rolled	Cold-rolled	Hi Str. H.R. Low Alloy	Hi Str. C.R. Low Alloy
EAST	Bethlehem, Pa.					\$76.00 B3			3.90 B3	5.80 B3				
	Buffalo, N. Y.			\$59.00 B3	\$70.50 B3, R3	\$76.00 B3, R3		4.675 B3	3.90 B3	5.80 B3	3.725 B3, R3	5.10 B3	5.70 B3	7.90 B3
	Claymont, Del.													
	Coatesville, Pa.													
	Censhoheoken, Pa.				\$77.50 A2	\$83.00 A2					4.125 A2		5.90 A2	
	Harriaburg, Pa.													
	Hartford, Conn.													
	Johntown, Pa.			\$59.00 B3	\$70.50 B3	\$76.00 B3			3.90 B3	5.80 B3	3.725 B3			
	Newark, N. J.													
	New Haven, Conn.											5.60 A5 5.85 D1		
	Phoenixville, Pa.								4.95 P2					
	Putnam, Conn.													
	Sparrows Pt., Md.										3.725 B3	5.10 B3	5.70 B3	7.90 B3
	Worcester, Mass.													
	Trenton, N. J.											6.45 R4		
MIDDLE WEST	Alton, Ill.										4.20 L1			
	Ashland, Ky.										3.725 A7			
	Canton-Massillon, Ohio				\$70.50 R3	\$76.00 R3 \$78.60 T5								
	Chicago, Sterling, Ill.			\$59.00 U1	\$70.50 U1, R3, W8	\$76.00 U1, R3, W8		4.675 U1	3.85 U1, W8	5.80 U1	3.725 A1, W8 4.725 N4	5.35 A1		
	Cleveland, Ohio				\$70.50 R3							5.10 A5, J3	7.45 J3	
	Detroit, Mich.	\$56.00 R5	\$57.00 R5		\$73.50 R5	\$79.00 R5					4.025 G3 4.40 M2	5.30 G3 5.45 M2 5.60 D1 6.05 D2	6.30 G3	8.15 G3
	Duluth, Minn.													
	Gary, Ind. Harbor, Indiana			\$59.00 U1	\$70.50 U1	\$76.00 U1, Y1		4.675 J3	3.85 J3, U1	5.80 J3, U1 6.30 Y1	3.725 J3, U1, Y1	5.35 J3	5.65 J3, U1 6.15 Y1	
	Granite City, Ill.													
	Kokomo, Ind.											5.10 A7		
	Middletown, Ohio													
	Niles, Ohio										4.225 S1	5.70 T4 5.90 S1	5.65 S1	7.30 S1
	Sharon, Pa.													
	Pittsburgh, Pa.	\$54.00 U1	\$57.00 U1, C11	\$59.00 U1	\$70.50 U1	\$76.00 U1, C11	3.55 U1 3.65 J3	4.675 U1	3.85 U1, J3	5.80 U1, J3	3.725 A7 3.975 A3 4.225 S7, S9	5.10 J3, A7 5.45 A3 5.80 B4, S7	7.45 J3	
	Midland, Pa.													
	Portsmouth, Ohio													
	Weirton, Wheeling, Follansbee, W. Va.								4.10 W3		3.825 W3	5.10 W3	6.10 W3	7.95 W3
	Youngstown, Ohio					\$76.00 Y1, C10	3.55 U1, R3			6.30 Y1	3.725 U1, Y1, R3	5.10 R3, Y1 5.70 C5 5.80 B4	5.65 R3, U1 6.15 Y1	7.30 R3 7.80 Y1
WEST	Fontana, Cal.	\$81.00 K1	\$83.00 K1	\$78.00 K1	\$89.50 K1	\$95.00 K1			4.50 K1	6.45 K1	5.175 K1	7.00 K1	6.75 K1	
	Geneva, Utah				\$70.50 C7				3.85 C7	5.80 C7				
	Kansas City, Mo.								4.45 S2		4.325 S2			
	Los Angeles, Torrance, Cal.				\$89.50 B2	\$96.00 B2			4.45 C7, B2	6.35 B2	4.475 C7, B2	7.15 C1	6.40 B2	
	Minnequa, Colo.								4.30 C6		4.775 C6			
	San Francisco, Niles, Pittsburg, Cal.				\$89.50 B2				4.40 B2 4.56 P9	6.30 B2	4.475 C7, B2		6.40 B2	
	Seattle, Wash.				\$89.50 B2, S11	\$96.00 S11			4.50 B2	6.40 B2	4.725 B2		6.65 B2	
	Atlanta, Ga.										4.275 A8			
SOUTH	Fairfield, Ala.			\$59.00 T2	\$70.50 T2				3.85 T2, R3	5.80 T2	3.725 T2, R3		5.65 T2	
	Alabama City, Ala.													
	Houston, Texas		\$65.00 S2		\$78.50 S2	\$84.00 S2			4.25 S2		4.125 S2			



*Italics identify producers listed in key at end of table. Base prices, f.o.b. mill, in cents per lb., unless otherwise noted. Extras apply.*

IRON AGE

**SHEETS**

**WIRE  
ROD**

**TINPLATE†**

**BLACK  
PLATE**

**STEEL  
PRICES**

*(Effective  
May 26, 1953)*

Hot-rolled 16 ga. b. byr.	Cold- rolled	Galvanized 10 ga.	Enameling 12 ga.	Long Tern 10 ga.	Hi Str. Low Alloy H.R.	Hi Str. Low Alloy C.R.	Hi Str. Low Alloy Galv.	Hot- rolled 19 ga.		Cokes* 1.25-lb. base box	Electro* 1.25-lb. base box	Holloware Enameling 29 ga.	
													Bethlehem, Pa.
													Buffalo, N. Y.
													Claymont, Del.
													Coatesville, Pa.
													Conshohocken, Pa.
													Harrisburg, Pa.
													Hartford, Conn.
													Johnstown, Pa.
													Newark, N. J.
													New Haven, Conn.
													Phoenixville, Pa.
													Puham, Conn.
													Sparrows Pt., Md.
													Worcester, Mass.
													Trenton, N. J.
													Alton, Ill.
													Ashland, Ky.
													Canton-Massillon, Ohio
													Chicago, Ill.
													Sterling, Ill.
													Cleveland, Ohio
													Detroit, Mich.
													Duluth, Minn.
													Gary, Ind. Harbor, Indiana
													Granite City, Ill.
													Kokomo, Ind.
													Middletown, Ohio
													Niles, Ohio Sharon, Pa.
													Pittsburgh, Pa. Midland, Pa.
													Portsmouth, Ohio
													Weirton, Wheeling, Follansbee, W. Va.
													Youngstown, Ohio
													Fontana, Cal.
													Geneva, Utah
													Kansas City, Mo.
													Los Angeles, Torrance, Cal.
													Minnequa, Colo.
													San Francisco, Niles, Pittsburg, Cal.
													Seattle, Wash.
													Atlanta, Ga.
													Fairfield, Ala. Alabama City, Ala.
													Houston, Tex.

IRON AGE		Italics identify producers listed in key at end of table. Base prices, f.o.b. mill, in cents per lb., unless otherwise noted. Extras apply.										
STEEL PRICES (Effective May 26, 1953)		BARS						PLATES				WIRE
		Carbon Steel	Reinforcing	Cold Finished	Alloy Hot-rolled	Alloy Cold Drawn	Hi Str. H.R. Low Alloy	Carbon Steel	Floor Plate	Alloy	Hi Str. Low Alloy	Mfg's. Bright
EAST	Bethlehem, Pa.				4.675 B3	6.00 B3	5.925 B3					
	Buffalo, N. Y.	3.95 B3,R3	3.95 B3,R3	4.975 B5	4.675 B3,R3	6.00 B3,B5	5.925 B3	3.90 B3			5.95 B3	
	Claymont, Del.							4.35 C4		5.35 C4		
	Coatesville, Pa.							4.35 L4		5.75 L4		
	Censhohocken, Pa.							4.35 A2	4.95 A2		6.20 A2	
	Harrisburg, Pa.							6.50 C3	6.50 C3			
	Hartford, Conn.			4.475 R3		6.45 R3						
	Johnstown, Pa.	3.95 B3	3.95 B3		4.675 B3		5.925 B3	3.90 B3		5.25 B3	5.95 B3	5.225 B3
	Newark, N. J.			5.375 W10		6.35 W10						
	New Haven, Conn.											
	Camden, N. J.			5.375 P10		6.35 P10						
	Putnam, Conn.			5.475 W10								
	Sparrows Pt., Md.		3.95 B3					3.90 B3		5.25 B3	5.95 B3	5.325 B3
MIDDLE WEST	Worcester, Mass.					6.35 A5						5.525 A5
	Trenton, N. J.											
	Alton, Ill.	4.50 L1										5.45 L1
	Ashland, Ky.							3.90 A7				
	Canton-Massillon	3.95 R3		4.925 R2,R3	4.675 R3 4.72 T5	5.99 T5 6.00 R2,R3						
	Chicago, Ill.	3.95 U1,W8, R3 4.55 N4	3.95 R3 4.70 N4	4.925 A5,B5 W8,W10	4.675 R3,U1, W8	6.00 B5,L2, R3,W8,W10 6.05 A5		3.90 U1,W8	4.95 U1	5.25 U1	5.95 U1	5.225 A3, N4,R3 5.325 K2 5.475 W7
	Cleveland, Ohio	3.95 R3	3.95 R3	4.925 A5,C13		6.00 C13 6.05 A5	5.925 R3	3.90 R3,J3	4.95 J3		5.95 R3,J3	5.225 A5, C13,R3
	Detroit, Mich.	4.10 R5 4.30 G3		5.075 R5,P8 5.175 P3 5.125 P5	4.825 R5 5.025 G3	6.15 R5,P8 6.20 P3, B5	6.675 G3	4.45 G3			6.90 G3	
	Duluth, Minn.											5.225 A5
	Gary, Ind. Harbor, Crawfordsville, Indiana	3.95 I3,U1, Y1	3.95 I3,U1, Y1	4.925 L2, M5,R3	4.675 I3,U1, Y1	6.00 L2,M5, R3,R5	5.925 I3,U1, 6.425 Y1	3.90 I3,U1, Y1	4.95 I3	5.25 U1	5.95 I3,U1, 6.45 Y1	5.325 M4
	Granite City, Ill.							4.60 G2				
	Kokomo, Ind.											5.325 C9
	Sterling, Ill.		4.80 N4									5.325 N4
WEST	Niles, Ohio Sharon, Pa.							4.15 S1		5.70 S1	5.95 S1	
	Pittsburgh, Pa. Midland, Pa.	3.95 U1,J3	3.95 U1,J3	4.925 A5,J3, W10,R3,C8	4.675 U1, C11	6.00 C8,C11, W10 6.05 A5	5.925 U1,J3	3.90 U1,J3	4.95 U1	5.25 U1	5.95 U1,J3	5.225 A5,J3 5.475 P6
	Portsmouth, Ohio											5.625 P7
	Weirton, Wheeling, Follansbee, W. Va.	4.10 W3						3.90 W5 4.20 W3				
	Youngstown, Ohio	3.95 U1,Y1, R3	3.95 U1,Y1, R3	4.925 F2,Y1	4.675 U1, C10,Y1	6.00 C10,F2, Y1	5.925 U1 6.425 Y1	3.90 U1,Y1, R3			5.95 R3 6.45 Y1	5.225 Y1
	Fontana, Cal.	4.65 K1	4.65 K1		5.725 K1		6.175 K1	4.55 K1		6.30 K1	6.65 K1	
	Geneva, Utah							3.90 C7			5.95 C7	
	Kansas City, Mo.	4.55 S2	4.55 S2		5.275 S2							5.825 S1
	Los Angeles, Torrance, Cal.	4.65 C7,F2	4.65 C7,B2	6.375 R3	5.725 B2		6.625 B2					6.175 C7,B1
	Minnequa, Colo.	4.40 C6	4.75 C6					4.70 C6				5.475 C6
	San Francisco, Niles, Pittsburg, Cal.	4.65 C7,P9 4.70 B2	4.65 C7,P9 4.70 B2				6.675 B2					6.175 C6,C7
	Seattle, Wash.	4.70 B2, S11	4.70 B2, S11		5.725 S11		6.675 B2	4.80 B2			6.85 B2	
SOUTH	Atlanta, Ga.	4.25 A8	4.25 A8									5.475 A8
	Fairfield, Ala. Alabama City, Ala.	3.95 T2,R3	3.95 T2,R3				5.925 T2	3.90 T2,R3			5.95 T2	5.225 T2, R3
	Houston, Texas Ft. Worth, Texas	4.35 S2	4.35 S2 5.05 T7		5.075 S2			4.30 S2				5.625 S2

(Effective May 26, 1953)

With Principal Offices

With Principal Offices

41 Acme Steel Co., Chicago  
 42 Alan Wood Steel Co., Conahohocken, Pa.  
 43 Allegheny Ludlum Steel Corp., Pittsburgh  
 44 American Cladmetals Co., Carnegie, Pa.  
 45 American Steel & Wire Div., Cleveland  
 46 Angell Nail & Chaiptel Co., Cleveland  
 47 Aranco Steel Corp., Middletown, O.  
 48 Atlantic Steel Co., Atlanta, Ga.  
 81 Babcock & Wilcox Tube Div., Beaver Falls, Pa.  
 82 Bethlehem Pacific Coast Steel Corp., San Francisco  
 83 Bethlehem Steel Co., Bethlehem, Pa.  
 84 Blair Strip Steel Co., New Castle, Pa.  
 85 Bliss & Laughlin, Inc., Harvey, Ill.  
 C1 Calatrup Steel Corp., Los Angeles  
 C2 Carpenter Steel Co., Reading, Pa.  
 C3 Central Iron & Steel Co., Harrisburg, Pa.  
 C4 Claymont Products Dept., Claymont, Del.  
 C5 Cold Metal Products Co., Youngstown  
 C6 Colorado Fuel & Iron Corp., Denver  
 C7 Columbia-Geneva Steel Div., San Francisco  
 C8 Columbia Steel & Shafing Co., Pittsburgh  
 C9 Continental Steel Corp., Kokomo, Ind.  
 C10 Copperweld Steel Co., Glasport, Pa.  
 C11 Crucible Steel Co. of America, New York  
 C12 Cumberland Steel Co., Cumberland, Md.  
 C13 Cuyahoga Steel & Wire Co., Cleveland  
 D1 Detroit Steel Corp., Detroit  
 D2 Detroit Tube & Steel Div., Detroit  
 D3 Driver Harris Co., Harrison, N. J.  
 D4 Dickson Weatherproof Nail Co., Evanston, Ill.  
 E1 Eastern Stainless Steel Corp., Baltimore  
 E2 Empire Steel Co., Mansfield, O.  
 F1 Firth Sterling, Inc., McKeesport, Pa.  
 F2 Fitzsimons Steel Corp., Youngstown  
 F3 Follansbee Steel Corp., Follansbee, W. Va.  
 G1 Globe Iron Co., Jackson, O.  
 G2 Granite City Steel Co., Granite City, Ill.  
 G3 Great Lakes Steel Corp., Detroit  
 H1 Hanna Furnace Corp., Detroit  
 I2 Ingersoll Steel Div., Chicago  
 I3 Inland Steel Co., Chicago  
 I4 Interlake Iron Corp., Cleveland  
 J1 Jackson Iron & Steel Co., Jackson, O.  
 J2 Jessop Steel Corp., Washington, Pa.  
 J3 Jones & Laughlin Steel Corp., Pittsburgh  
 J4 Joslyn Mfg. & Supply Co., Chicago  
 K1 Kaiser Steel Corp., Fontana, Cal.  
 K2 Keystone Steel & Wire Co., Peoria  
 K3 Koppers Co., Granite City, Ill.  
 L1 Laclede Steel Co., St. Louis  
 L2 La Salle Steel Co., Chicago  
 L3 Lone Star Steel Co., Dallas  
 L4 Lukens Steel Co., Coatesville, Pa.  
 M1 Mahoning Valley Steel Co., Niles, O.  
 M2 McLouth Steel Corp., Detroit  
 M3 Mercer Tube & Mfg. Co., Sharon, Pa.  
 M4 Mid-States Steel & Wire Co., Crawfordsville, Ind.  
 M1 Monarch Steel Co., Inc., Hammond, Ind.  
 M4 Myxite Iron Works, Everett, Mass.  
 N1 National Supply Co., Pittsburgh  
 N2 National Tube Co., Pittsburgh  
 N3 Niles Rolling Mills Co., Niles, O.  
 N4 Northwestern Steel & Wire Co., Sterling, Ill.  
 N5 Newport Steel Corp., Newport, Ky.  
 O1 Oliver Iron & Steel Co., Pittsburgh  
 P1 Page Steel & Wire Div., Monacaen, Pa.  
 P2 Phoenix Iron & Steel Co., Phenixville, Pa.  
 P3 Pilgrim Drawn Steel Div., Plymouth, Mich.  
 P4 Pittsburgh Coke & Chemical Co., Pittsburgh  
 P5 Pittsburgh Screw & Bolt Co., Pittsburgh

F.a.b. Mill	Standard & Coated Nail		Face Posts	Single Loop Bale Ties	Twisted Barbed Wire	Galv. Barbed Wire	March. Wire Ann'd	March. Wire Galv.
	Col	Col						
Alabama City R31	127	135		132		144	6.075	6.325
Alaquippa, Pa. J3	126	136				145	6.375	6.90
Atlanta A8	130	140		135		149	6.325	6.675
Bartonsville K2	127	139	140	132	148	148	6.075	6.50
Buffalo W6								
Chicago A4	127			132	151		6.375	6.925
Cleveland A6								
Cleveland A5							6.175	
Crawfordsville M4	127	138		132		147	6.375	6.46
Monora, Pa. A5	127	133		132	142	148	6.375	6.775
Duluth A5	127	133		132	142	148	6.375	6.775
Fairfield, Ala. T2	127	133		132	142	148	6.375	6.775
Galveston D4	135							6.925
Houston S2	135	147				156	6.475	6.975
Johnstn., Pa. B3	127		148		149		6.575	
Joliet, Ill. A5	127	133		132	142	148	6.375	6.775
Kokomo, Ind. C9			142				6.175	6.425
Los Angeles B2							7.025	
Kansas City S2	139			144		160	6.075	7.125
Minnequa C6	132	146	138	137		153	6.325	6.70
Moline, Ill. R3	146		136					
Pittsburg, Cal. C7	146	156		156	162	168	7.375	7.725
Monessen P6	127	138			147	147	6.075	6.45
Pertsmouth P7	132						6.47	
Rankin, Pa. A5	127	133			142	148	6.375	6.775
So. Chicago R3	127	135	140	132		144	6.075	6.325
S. San Francisco	129			153		167	7.025	7.40
Sparrows Pt. B3				134	151			6.675
Struthers, O. Y1							6.225	6.725
Terrance, Cal. C7	147						7.325	7.725
Worcester A5	133						6.675	7.075
Williamsport, Pa. S10								

† Zinc extra not included on Galv. Merch. Wire.  
‡ Struthers Galv. Merch. Wire based on 15¢ Zinc.

## Base price, cents per lb., f.o.b. mill

Product	301	302	303	304	316	321	347	410	416	430
Ingot, rerolling	15.50	16.50	18.00	17.50	26.75	21.75	23.50	13.50	16.25	13.75
Slabs, billets, rerolling	19.75	21.75	23.75	22.75	34.75	28.25	30.75	17.50	21.50	17.75
Forg. discs, die blocks, rings	36.75	37.00	39.75	38.50	57.25	43.50	48.25	30.00	30.50	30.50
Billets, forging	28.25	28.50	30.75	29.75	44.75	33.75	37.75	23.00	23.50	23.50
Bars, wires, structurals	33.75	34.00	36.50	35.50	53.00	40.00	44.75	27.50	28.00	28.00
Plates	35.75	35.75	38.00	38.00	56.00 56.25	44.00	49.00	28.75	29.75	29.25
Sheets	44.25	44.50	46.50	46.50	61.50	53.00	58.00	39.00	39.50	41.50
Strip, hot-rolled	28.50	30.50	35.00	32.75	52.50	40.00	44.50	25.00	32.75	25.75
Strip, cold-rolled	36.50	39.75	43.50	41.75	63.50	52.00	56.50	32.75	39.50	33.25

STAINLESS STEEL PRODUCING POINTS—*Sheets:* Midland, Pa., *C11*; Brackenridge, Pa., *A3*; Butler, Pa., *A7*; McKeesport, Pa., *U1*; Washington, Pa., *W2*; (type 316 add 4.5%) *J2*; Baltimore, *E1*; Middletown, O., *A7*; Massillon, O., *R3*; Gary, *U1*; Bridgeville, Pa., *U2*; New Castle, Ind., *J2*; Ft. Wayne, *J4*; Lockport, N. Y., *R4*.

*Strip:* Midland, Pa., *C11*; Cleveland, *A5*; Carnegie, Pa., *S9*; McKeesport, Pa., *F1*; Reading, Pa., *C2*; Washington, Pa., *W2* (type 316 add 4.5¢); W. Leechburg, Pa., *A3*; Bridgeville, Pa., *U2*; Detroit, *M2*; Canton-Massillon, O., *R3*; Middletown, O., *A7*; Harrison, N. J., *D3*; Youngstown, *C5*; Lockport, N. Y., *S4*; Sharon, Pa., *S1* (type 301 add 1/4¢); Butler, Pa., *A7*; Wallingford, Conn., *W1*.

Bears: Baltimore, A7; Duquesne, Pa., U1; Munhall, Pa., U1; Reading, Pa., C2; Titusville, Pa., U2; Washington, Pa., J2; McKeesport, Pa., U1, F1; Bridgeville, Pa., U2; Dunkirk, N. Y., A3; Massillon, O., R3; Chicago, U1; Syracuse, N. Y., C11; Watervliet, N. Y., A3; Waukegan, A5; Lockport, N. Y., S4; Canton, O., T5; Ft. Wayne, J4.

*Wires:* Waukegan, A5; Massillon, O., R3; McKeesport, Pa., F1; Ft. Wayne, J4; Harrison, N. J., D3; Baltimore, A7; Dunkirk, A3; Monacaen, P1; Syracuse, C11; Bridgeville, U2.

*Structurals*: Baltimore, 47; Massillon, O., 83; Chicago, Ill., 14; Watervliet, N. Y., 43; Syracuse, Ctl.

*Plates:* Brackenridge, Pa., A3; Butler, Pa., A7; Chicago, IL; Munhall, Pa., U1; Midland, Pa., C11; New Castle, Ind., 12; Lockport, N. Y., S4; Middletown, A7; Washington, Pa., J2; Cleveland, Massillon, R3.

*Forced discs, die blocks, stings:* Pittsburgh, C11; Syracuse, C11; Ferndale, Mich., 43; Washington, Pa., 12.

**Forging billets:** Midland, Pa., C11; Baltimore, A7; Washington, Pa., J2; McKeesport, F1; Massillon, Canton, O., R3; Watervliet, N.Y.; Pittsburgh, Chicago, IL; Syracuse, C11.

WASHINGTON STEEL—Slightly lower on 300 series except where noted



# Miscellaneous Prices

(Effective May 26, 1953)

## PIPE AND TUBING

Base discounts f.o.b. mills. Base price about \$200 per net ton.

	BUTTWELD												SEAMLESS							
	1/2 In.		3/4 In.		1 In.		1 1/4 In.		1 1/2 In.		2 In.		2 1/2 In.		3 In.		3 1/2 In.		4 In.	
	Bk.	Gal.	Bk.	Gal.	Bk.	Gal.	Bk.	Gal.	Bk.	Gal.	Bk.	Gal.	Bk.	Gal.	Bk.	Gal.	Bk.	Gal.	Bk.	Gal.
STANDARD T. & C.																				
Sparrows Pt. B3	26.25	10.5	29.25	14.5	32.25	18.0	34.25	18.5	35.25	19.5	35.75	20.0	37.25	20.5						
Youngstown R3	28.75	12.5	31.75	16.5	34.25	20.0	36.75	21.0	37.25	22.0	37.75	22.5	39.25	22.5						
Fontana K1	19.5	3.25	22.5	7.25	25.0	10.75	25.5	9.75	26.0	10.75	26.5	11.25	27.0	10.25						
Pittsburgh J3	28.75	12.5	31.75	16.5	34.25	20.0	36.75	21.0	37.25	22.0	37.75	22.5	39.25	22.5	18.25	2.5	22.25	5.0	24.75	7.50
Alton, Ill. L1	31.5	15.25	34.5	19.25	37.0	22.75	37.5	21.75	38.0	22.75	38.5	23.25	39.0	22.25						
Sharon M3	28.75	12.5	31.75	16.5	34.25	20.0	36.75	21.0	37.25	22.0	37.75	22.5	39.25	22.5						
Pittsburgh N1	28.75	12.5	31.75	16.5	34.25	20.0	36.75	21.0	37.25	22.0	37.75	22.5	39.25	22.5	18.25		22.25		24.75	
Wheeling W5	28.75	12.5	31.75	16.5	34.25	20.0	36.75	21.0	37.25	22.0	37.75	22.5	39.25	22.5					26.25	
Wheeling W4	28.75	12.5	31.75	16.5	34.25	20.0	36.75	21.0	37.25	22.0	37.75	22.5	39.25	22.5						
Youngstown Y1	28.75	12.5	31.75	16.5	34.25	20.0	36.75	21.0	37.25	22.0	37.75	22.5	39.25	22.5	18.25	2.5	22.25	5.0	24.75	7.50
Indiana Harbor Y1	27.75	11.5	30.75	15.5	33.25	19.0	35.75	20.0	36.25	21.0	36.75	21.5	38.25	21.5					26.25	9.0
Lorain Y2	28.75	12.5	31.75	16.5	34.25	20.0	36.75	21.0	37.25	22.0	37.75	22.5	39.25	22.5	18.25	2.5	22.25	5.0	24.75	7.50
EXTRA STRONG																				
PLAIN ENDS																				
Sparrows Pt. B3	30.25	15.5	34.25	19.5	36.25	23.0	36.75	22.0	37.25	23.0	37.75	23.5	38.25	22.5						
Youngstown R3	32.25	17.5	36.25	21.5	38.25	25.0	38.75	24.0	39.25	25.0	39.75	25.5	40.25	24.5						
Fontana K1	19.25		23.25		25.25		25.75		26.25		26.75		27.25							
Pittsburgh J3	32.25	17.5	36.25	21.5	38.25	25.0	38.75	24.0	39.25	25.0	39.75	25.5	40.25	24.5	18.75	3.25	23.25	6.25	26.25	9.25
Alton, Ill. L1	29.25	14.5	33.25	18.5	35.25	20.0	35.75	21.0	36.25	22.0	36.75	22.5	37.25	21.5						
Sharon M3	32.25	17.5	36.25	21.5	38.25	25.0	38.75	24.0	39.25	25.0	39.75	25.5	40.25	24.5						
Pittsburgh N1	32.25	17.5	36.25	21.5	38.25	25.0	38.75	24.0	39.25	25.0	39.75	25.5	40.25	24.5	18.75		23.25		26.25	
Wheeling W5	32.25	17.5	36.25	21.5	38.25	25.0	38.75	24.0	39.25	25.0	39.75	25.5	40.25	24.5					31.25	
Wheeling W4	32.25	17.5	36.25	21.5	38.25	25.0	38.75	24.0	39.25	25.0	39.75	25.5	40.25	24.5						
Youngstown Y1	32.25	17.5	36.25	21.5	38.25	25.0	38.75	24.0	39.25	25.0	39.75	25.5	40.25	24.5	18.75	3.25	23.25	6.25	26.25	9.25
Indiana Harbor Y1	31.25	16.5	35.25	20.5	37.25	24.0	37.75	23.0	38.25	24.0	38.75	24.5	39.25	23.5						
Lorain N2	32.25	17.5	36.25	21.5	38.25	25.0	38.75	24.0	39.25	25.0	39.75	25.5	40.25	24.5	18.75	3.25	23.25	6.25	26.25	9.25

Galvanized discounts based on zinc, at 11¢ per lb. East St. Louis. For each 1¢ change in zinc, discounts vary as follows: 1/2 in., 3/4 in., and 1 in., 1 pt.; 1 1/4 in., 1 1/2 in., 2 in., 3/4 pt.; 2 1/2 in., 3 in., 1 1/2 pt. Calculate discounts on even cents per lb. of zinc, i.e., if zinc is 16.51¢ to 17.50¢ per lb., use 17¢. Jones & Laughlin discounts apply only when zinc price changes 1¢. Threads only butt-weld and seamless, 1 pt. higher discount. Plain ends, butt-weld and seamless, 3 in. and under, 3/4 pts. higher discount. Butt-weld jockey's discount, 5 pts. East St. Louis zinc price now 11.0¢.

## COKE

Furnace, beehive (f.o.b. oven)	Net-Ton
Connellsville, Pa.	\$14.50 to \$15.00
Foundry, beehive (f.o.b. oven)	
Connellsville, Pa.	\$16.50 to \$18.00
Foundry, oven coke	
Buffalo, del'd	\$28.08
Chicago, f.o.b.	24.50
Detroit, f.o.b.	25.50
New England, del'd	26.05
Seaboard, N. J., f.o.b.	24.00
Philadelphia, f.o.b.	23.95
Swedeland, Pa., f.o.b.	23.85
Painesville, Ohio, f.o.b.	24.00
Erie, Pa., f.o.b.	25.00
Cleveland, del'd	27.43
Cincinnati, del'd	26.56
St. Paul, f.o.b.	23.75
St. Louis, f.o.b.	26.00
Birmingham, del'd	23.21
Lone Star, Tex., f.o.b.	18.50

## ELECTRICAL SHEETS

22 Ga. H-R cut length	Armature	Elec.	Motor	Dynamo	Transf. 72	Transf. 65	Transf. 58
F.o.b. Mill Cents Per Lb.							
Beach Bottom W5	7.85	9.10	9.90	10.45	11.00	11.70	
Brackenridge A3	7.35	7.85	9.10	9.90	10.45	11.00	11.70
Granite City C2	8.55	9.80					
Ind. Harbor I3	7.35	7.85	9.10				
Mansfield E2	7.35	7.85	9.10	9.90			
Newport, Ky. N5	7.35	7.85	9.10	9.90	10.45		
Niles, O. N3	7.35	7.85					
Vandergrift U1	7.35	7.85	9.10	9.90	10.45	11.00	11.70
Warren, O. R3	7.35	7.85	9.10				
Zanesville A7	7.35	7.85	9.10	9.90	10.45	11.00	11.70

## CAST IRON WATER PIPE

Per Net Ton  
6 to 24-in., del'd Chicago \$110.30 to \$113.50  
6 to 24-in., del'd N.Y. 113.50 to 114.50  
6 to 24-in., Birmingham 96.50 to 101.00  
6-in. and larger f.o.b. cars, San Francisco, Los Angeles, for all rail shipments; rail and water shipments less \$128.00 to \$130.00  
Class "A" and gas pipe, \$5 extra; 4-in. pipe is \$5 a ton above 6-in.

## BOILER TUBES

\$ per 100 ft. carload lots, cut 10 to 24 ft. F.o.b. Mill	Size		Seamless		Elec. Weld	
	OD- In.	B.W. Ga.	H.R.	C.D.	H.R.	C.D.
Babcock & Wilcox . . .	2	13	.....	.....	.....	.....
	2½	12	.....	.....	.....	.....
	2	12	.....	.....	.....	.....
	3½	11	.....	.....	.....	.....
	4	10	.....	.....	.....	.....
National Tube . . . . .	2	13	.....	29.04	20.73	.....
	2½	12	31.51	39.10	28.45	.....
	3	12	36.38	45.14	32.62	.....
	3½	11	42.47	52.71	38.69	.....
	4	10	56.40	69.99	49.12	.....
Pittsburgh Steel . . . .	2	13	.....	.....	.....	.....
	2½	12	.....	.....	.....	.....
	3	12	.....	.....	.....	.....
	3½	11	.....	.....	.....	.....
	4	10	.....	.....	.....	.....

## C-R SPRING STEEL

Cents Per Lb. F.o.b. Mill	CARBON CONTENT				
	0.20-0.40	0.41-0.60	0.61-0.81	0.81-1.05	1.06-1.35
Bridgeport, Conn. S7	5.80	7.65	8.25	10.20	12.50
Carnegie, Pa. S9		7.65	8.25	10.20	12.50
Cleveland A5	5.10	7.30	8.25	10.20	12.50
Detroit D1	6.45	7.50	8.10		
New Castle, Pa. B4	5.80	7.65	8.25	10.20	
New Haven, Conn. D1	6.70	7.60	8.20		
Sharon, Pa. S1	5.80	7.65	8.25	10.20	12.50
Trenton, N. J. R4		7.95	8.55	10.50	12.00
Warren, Ohio T4	6.20	7.65	8.25	10.20	12.50
Weirton, W. Va. W3	5.80	7.65	8.25	10.20	12.50
Worcester, Mass. A5	5.40	7.60	8.55	10.50	12.50
Youngstown C5		7.65	8.25	10.20	12.50

\* Sold on Pittsburgh base.

## PIG IRON

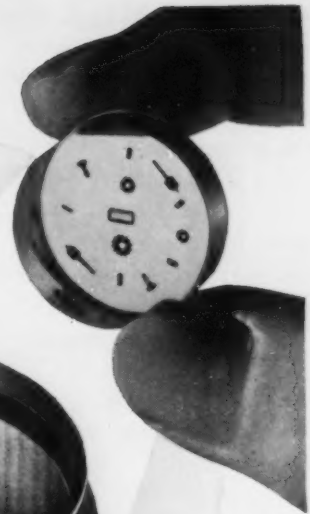
Dollars per gross ton, f.o.b., subject to switching charges.

Producing Point	Basic	Foundry	Malleable	Bessemer	Low Phos.	Bl. Furnace Silvery
Bethlehem B3	56.50	57.00	57.50	58.00		
Birmingham R3	50.88	51.38				
Birmingham W9	50.88	51.38				
Birmingham S5	50.88	51.38				
Buffalo R3	54.50	55.00	55.50			
Buffalo H1	54.50	55.00	55.50			66.75
Buffalo W6	54.50	55.00	55.50			
Chicago I4	54.50	55.00	55.00	55.50		
Cleveland A5	54.50	55.00	55.00	55.50	59.50	
Cleveland R3	54.50	55.00				
Daingerfield, Tex. L3	50.50	51.00	51.00			
Duluth I4	54.50	55.00	55.00	55.50		
Erie I4	54.50	55.00	55.00	55.50		
Everett, Mass. M6		59.50	60.00			
Fontana K1	60.50	61.00				
Geneva, Utah C2	54.50	55.00				
Granite City, Ill. K3	56.40	56.90	57.40			
Hubbard, Ohio Y1	54.50	55.00	55.00			
Jackson, Ohio J1 G1						65.50
Minnequa C6	56.50	57.50	57.50			
Monessen P6	56.50					
Neville Island P4	54.50	55.00	55.00	55.50		
Pittsburgh U1	54.50			55.50		
Sharpville S3	54.50	55.00	55.00	55.50		
Steelton B3	56.50	57.00	57.50	58.00	62.50	
Swedeland A2	58.50	59.00	59.50	60.00		
Toledo I4	54.50	55.00	55.00	55.50		
Troy, N. Y. R3	56.50	57.00	57.50	58.00	62.50	
Youngstown Y1	54.50	55.00	55.00	55.50		
N. Tonawanda, N. Y. T1		55.00	55.50			

DIFFERENTIALS: Add 50¢ per ton for each 0.25 pct silicon over base (1.75 to 2.25 pct except low phos., 1.75 to 2.00 pct), 50¢ per ton for each 0.50 pct manganese over 1 pct, \$2 per ton for 0.5 to 0.75 pct nickel, \$1 for each additional 0.25 pct nickel. Subtract 38¢ per ton for phosphorus, content 0.70 and over. Silvery iron: Add \$1.50 per ton net for each 0.50 pct silicon over base (6.01 to 6.50 pct) up to 17 pct. \$1 per ton for 0.75 pct or more phosphorus, manganese as above. Bessemer ferro-silicon prices are \$1 over comparable silvery iron.

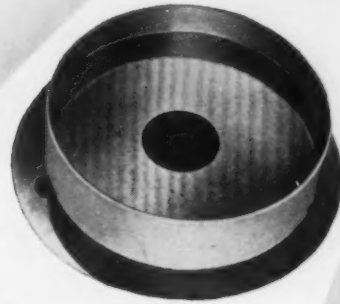
## Tiny?

Yes! The No. 11 Blanchard Surface Grinder grinds these ladies' watch gears, pinions and ruby bearings flat and parallel, and to a dimension tolerance of .0002".



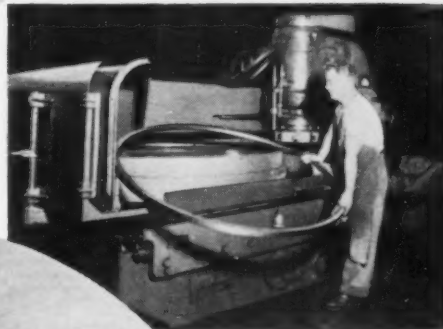
## Smooth?

Of course! The Blanchard No. 11 finished this refrigerator plate, seen through an optical flat, to 3 micro inches and flat within 1 light band (.0000118").



## Accurate?

Sure . . . and easy, too! This Blanchard grinds 84" forged steel rings flat within .0002", parallel to .0002", dimension tolerance of  $\pm .0005$ ", and with surface finish of 4 micro inches.



## Tremendous?

Yes . . . but fast! This 88" diameter cast-iron plate was ground on a No. 42-72-84 Blanchard in 3½ hrs., floor to floor. ¼" of stock—1520 cu. in.—380 lbs. was removed.

If you produce flat surfaces, your best bet is Blanchard Grinders—with Blanchard Wheels!

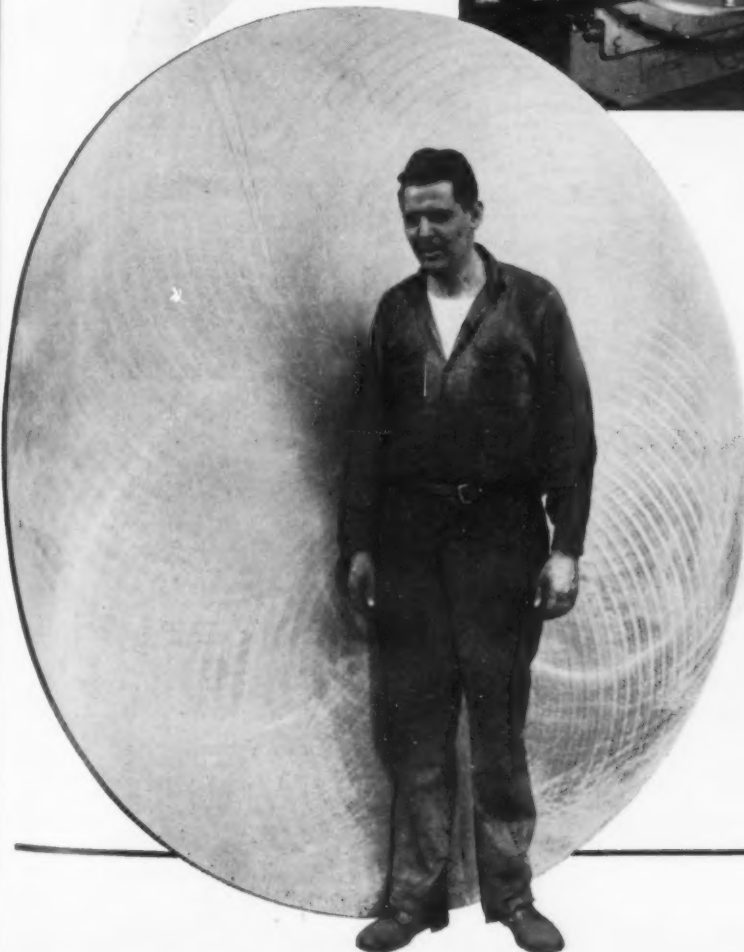
PUT IT ON THE **BLANCHARD**



Send for your free copies of "Work Done on the Blanchard", fourth edition, and "Art of Blanchard Surface Grinding".

**THE BLANCHARD MACHINE CO.**

64 STATE ST., CAMBRIDGE 39, MASS., U. S. A.



## Miscellaneous Prices

(Effective May 26, 1953)

### RAILS, TRACK SUPPLIES

F.o.b. Mill Cents Per Lb	No. 1 Std. Rail	Light Rail	Joint Bars	Track Spikes	Screw Spikes	Tie Plates	Track Bolts Treated
Bessemer U1	4.075	5.00	5.075				
Chicago R3				6.65			
Cleveland R3							
Ensley T2	4.075	5.00			4.925		
Fairfield T2		5.00		6.65			
Gary U1	4.075	5.00			4.925		
Ind. Harbor T3	4.075		5.075	6.80	4.925		
Johnstown B3		4.55					
Joliet U1		5.00	5.075				
Kansas City S2							
Lackawanna B3	4.075	4.55	5.075		4.925		
Lebanon B3				6.65			
Minnequa C6	4.075	5.05	5.075	6.80	4.925	10.00	
Pittsburgh R3							
Pittsburgh O1							
Pittsburgh P5							
Pittsburgh J3				6.65			
Pittg. Cal. C7					5.075		
Seattle B2				7.30	5.075		
Steelton B3	4.075		5.075		4.925		
Struthers Y1				6.65			
Terrance C7						5.075	
Youngstown R3				6.65			

### TOOL STEEL

F.o.b. mill

Add 4.7 pct to base and extras.

W	Cr	V	Mo	Co	Base per lb
18	4	1	—	—	\$1.505
18	4	1	—	5	\$2.13
18	4	2	—	—	\$2.65
1.5	4	1.5	8	—	\$1.04
6	4	2	6	—	\$6.54
High-carbon chromium					\$3.54
Oil hardened manganese					\$5.4
Special carbon					\$2.54
Extra carbon					\$2.4
Regular carbon					\$2.4
Warehouse prices on and east of Missis-					
sippi are 3.5¢ per lb. higher. West of					
Mississippi, 5.5¢ higher.					

### CLAD STEEL

Add 4.7 pct to base and extras.

Stainless-carbon	Plate	Sheet
No. 304, 20 pct.		
Coatesville, Pa. L4	\$29.51	
Washington, Pa. J2	\$29.5	
Claymont, Del. C4	\$29.50	
Conshohocken, Pa. A2		\$27.50
New Castle, Ind. I2	\$29.77	\$26.24
Nickel-carbon		
10 pct. Coatesville, Pa. L4		32.5
Inconel-carbon		
10 pct. Coatesville, Pa. L4		40.5
Monel-carbon		
10 pct. Coatesville, Pa. L4		33.5
No. 302 Stainless copper stainless, Carnegie,		
Pa. A4		77.00
Aluminized steel sheets, hot dip, Butler, Pa.,		
A7		7.75

\* Includes annealing and pickling, sandblasting.

### ELECTRODES

Cents per lb. f.o.b. plant threaded electrodes with nipples, unboxed

Diam. in in.	Length in in.	Cents Per lb.
GRAPHITE		
24	84	18.70
17, 18, 20	60, 72	18.70
8 to 16	48, 60, 72	18.70
7	48, 60	20.50
6	48, 60	21.95
4, 5	40	23.53
3	40	23.68
2 1/2	24, 30	24.26
2	24, 30	26.57
CARBON		
40	100, 110	8.45
35	65, 110	8.45
30	65, 84, 110	8.45
24	72 to 104	8.45
20	84, 90	8.45
17	60, 72	8.45
14	60, 72	9.02
10, 12	60	9.30
8	60	9.58

### FLUORSPAR

Washed gravel, f.o.b. Rosiclare, Ill.	
Price, net ton; Effective CaF <sub>2</sub> content:	
72 1/2%	\$44.00
70% or more	42.50
60% or less	38.00

### BOLTS, NUTS, RIVETS, SCREWS

#### Consumer Prices

(Base, discount, f.o.b. mill, Pittsburgh, Cleveland, Birmingham or Chicago)

#### Nuts, Hot Pressed, Cold Punched—Sq.

	Pct Off	Less Keg	Less Keg
	List	Reg.	Hvy.
1/2 in. & smaller	10	24	24
9/16 in. & 5/8 in.	8	21	16
3/4 in. to 1 1/2 in.			
Inclusive	4	18	12
1 1/2 in. & larger	2	17	12

#### Nuts, Hot Pressed—Hexagon

1/2 in. & smaller	22	33	18	30
9/16 in. & 5/8 in.	12	25	1	16
3/4 in. to 1 1/2 in.				
Inclusive	8	21	13	13
1 1/2 in. & larger	4	18	13	13

#### Nuts, Cold Punched—Hexagon

1/2 in. & smaller	22	33	18	30
9/16 in. & 5/8 in.	19	31	13	26
3/4 in. to 1 1/2 in.				
Inclusive	15	27	8	21
1 1/2 in. & larger	2	17	14	12

#### Nuts, Semi-Finished—Hexagon

	Reg.	Hvy.
1/2 in. & smaller	33	43
9/16 in. & 5/8 in.	27	38
3/4 in. to 1 1/2 in.		
Inclusive	21	33
1 1/2 in. & larger	5	19
7/16 in. & smaller	33	43
1/2 in. thru 5/8 in.	26	37
3/4 in. to 1 1/2 in.		
Inclusive	18	30

#### Stove Bolts

	Pct Off
	List
Packaged, steel, plain finished	44 1/2—10
Packaged, plain finish	25 1/2—10
Bulk, plain finish**	59*
*Discounts apply to bulk shipments in not less than 15,000 pieces of a size and kind where length is 3-in. and shorter; 5000 pieces for lengths longer than 3-in. For lesser quantities, packaged price applies.	
**Zinc, Parkerized, cadmium or nickel plated finishes add 6¢ per lb net. For black oil finish, add 2¢ per lb net.	

#### Rivets

	Base per 100 lb
1/2 in. & larger	\$8.50
7/16 in. and smaller	30

#### Cap and Set Screws

	Pct Off
	List
Hexagon head cap screws, coarse or fine thread, 1/4 in. thru 5/8 in. x 6 in., SAE 1020, bright	40
3/4 in. thru 1 in. up to & including 6 in.	26
3/4 in. thru 5/8 in. x 6 in. & shorter high C double heat treat	43
3/4 in. thru 1 in. up to & including 6 in.	33
Milled studs	17
Flat head cap screws, listed sizes	12
Fillister head cap, listed sizes	7
Set screws, sq head, cup point, 1 in. diam. and smaller x 6 in. & shorter	37

#### Machine and Carriage Bolts

	Pct Off
	List
1/2 in. & smaller x 6 in. & shorter	11
9/16 in. & 5/8 in. x 6 in. & shorter	15
3/4 in. & larger x 6 in. & shorter	14
All diam. longer than 6 in.	8
Lag, all diam. x 6 in. & shorter	19
Lag, all diam. longer than 6 in.	16
Plow bolts	30

### REFRACTORIES

#### Fire Clay Brick

Carloads, per 1000	
First quality, Ill., Ky., Md., Mo., Ohio, Pa. (except Salina, Pa., add \$5.25)	\$99.20
No. 1 Ohio	92.40
Sec. quality, Pa., Md., Ky., Mo., Ill.	92.40
No. 2 Ohio	83.15
Ground fire clay, net ton, bulk (except Salina, Pa., add \$1.60)	14.40

#### Silica Brick

Mt. Union, Pa., Ensley, Ala.	\$99.20
Childs, Pa.	103.95
Hays, Pa.	105.10
Chicago District	122.40
Western Utah	116.55
California	122.85
Super Duty, Hays, Pa., Athens, Tex., Chicago	116.65
Silica cement, net ton, bulk, Eastern (except Hays, Pa.)	17.30
Silica cement, net ton, bulk, Hays, Pa.	19.60
Silica cement, net ton, bulk, Ensley, Ala.	18.45
Silica cement, net ton, bulk, Chicago District	18.45
Silica cement, net ton, bulk, Utah and Calif.	25.95

#### Chrome Brick

Per net ton	
Standard chemically bonded Balt., Chester	\$86.00
Burned, Balt., Chester	80.00

#### Magnesite Brick

Standard Baltimore	\$109.00
Chemically bonded, Baltimore	97.50

#### Grain Magnesite

St. %-in. grains	
Domestic, f.o.b. Baltimore in bulk fines removed	\$64.40
Domestic, f.o.b. Chewah, Wash., in bulk	38.00
in sacks	43.70

#### Dead Burned Dolomite

F.o.b. producing points in Pennsylvania, West Virginia and Ohio per net ton, bulk Midwest, add 10¢; Missouri Valley, add 20¢	\$13.75
--	---------

### LAKE SUPERIOR ORES

51.50% Fe; natural content, delivered lower Lake ports. Prices through June 30, 1953, delivery.

	Gross Ton
Openhearth lump	\$10.95
Old range, bessemer	10.10
Old range, nonbessemer	9.85
Mesabi, bessemer	9.70
Mesabi, nonbessemer	9.70
High phosphorus	9.70
Prices based on upper Lake rail freight rates, Lake vessel freight rates, handling and unloading charges, and taxes thereon, in effect on Dec. 31, 1952. Increases or decreases after such date are for buyer's account.	

### METAL POWDERS

Per pound, f.o.b. shipping point, in ton lots, for minus 100 mesh.	
Swedish sponge iron c.i.f.	
New York, ocean bags	10.94
Canadian sponge iron, del's in East	12.04
Domestic sponge iron, 98+% Fe, carloads lots	15.5¢ to 17.94
Electrolytic iron, annealed, 99.5+% Fe	44.04
Electrolytic iron, unannealed, minus 325 mesh, 99+% Fe	60.04
Hydrogen reduced iron, minus 300 mesh, 98+% Fe	53.0¢ to 80.04
Carbonyl iron, size 5 to 10 micron, 98%, 99.8+% Fe	83.0¢ to \$1.49
Aluminum	31.54
Brass, 10 ton lots	30.00¢ to 33.25¢
Copper, electrolytic 10.75¢ plus metal value	
Copper reduced	10.00¢ plus metal value
Cadmium, 100-199 lb. 95¢ plus metal value	
Chromium, electrolytic, 99% min., and quantity, del'd	83.50
Lead	7.5¢ to 12.0¢ plus metal value
Manganese	67.04
Molybdenum, 99%	82.75
Nickel, unannealed	88.04
Nickel, annealed	95.04
Nickel, spherical, unannealed	92.04
Silicon	83.54
Solder powder	7.0¢ to 9.0¢ plus met. value
Stainless steel, 302	83.94
Stainless steel, 316	11.10
Tin	14.04¢ plus metal value
Tungsten, 99% (65 mesh)	55.50
Zinc, 10 ton lots	23.0¢ to 30.54



# No cam worries with a Warner & Swasey 5-Spindle Automatic

NO CAMS TO DESIGN



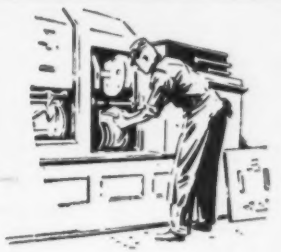
NO CAMS TO MACHINE



NO CAMS TO STORE



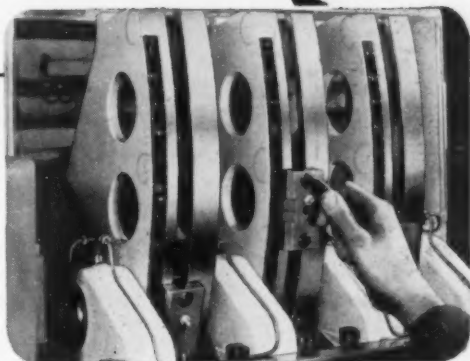
NO CAMS TO FIND



NO CAMS TO CHANGE



IT'S SIMPLE TO SET UP

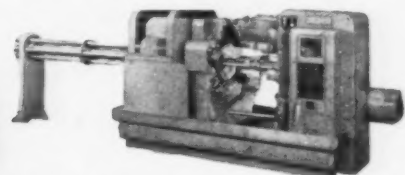


Patented "Quick-Set" Quadrants cut set-up time, quickly adjust to any feed stroke between 0 and 5 inches.

JUST make a simple setting and there you have your new feed stroke, clearly indicated on a graduated scale. Yes, it's as easy as that! All feed strokes are quickly available for both longitudinal and cross slides. No more need to sacrifice cycle time because the "right" cam is not on hand or because a cam change would take too long. You always get your exact feed stroke quickly on the Warner & Swasey 5-Spindle Automatic.

**WARNER  
&  
SWASEY**

Cleveland  
PRECISION  
MACHINERY  
SINCE 1880



5-Spindle Bar Machines  
—1 3/4" Standard Capacity  
—2 1/4" Oversize Capacity  
5-Spindle Chucking Machine—6" Swing

YOU CAN PRODUCE IT BETTER, FASTER, FOR LESS WITH WARNER & SWASEY MACHINE TOOLS, TEXTILE MACHINERY, CONSTRUCTION MACHINERY

# Ferroalloy Prices

(Effective May 26, 1953)

## Ferrochrome

Contract prices, cents per pound, contained CR, lump size, bulk in carloads delivered. (65-72% Cr, 2% max. Si.)  
 0.06% C ... 34.50 0.20% C ... 33.50  
 0.10% C ... 34.00 0.50% C ... 33.25  
 0.15% C ... 33.75 1.00% C ... 33.00  
 2.00% C ... 32.75  
 65-69% Cr, 4-9% C ... 24.75  
 62-66% Cr, 4-6% C, 6-9% Si ... 25.60

## S. M. Ferrochrome

Contract price, cents per pound, chromium contained, lump size, delivered.  
 High carbon type: 60-65% Cr, 4-6% Si, 4-6% Mn, 4-6% C.  
 Carloads ... 25.85  
 Ton lots ... 28.00  
 Less ton lots ... 29.50

## High-Nitrogen Ferrochrome

Low-carbon type: 67-72% Cr, 0.75% N. Add 5¢ per lb to regular low carbon ferrochrome price schedule. Add 3¢ for each additional 0.25% of N.

## Chromium Metal

Contract prices, per lb chromium contained, packed, delivered, ton lots, 97% min. Cr, 1% max. Fe.  
 0.10% max. C ... \$1.18  
 0.50% max. C ... 1.14  
 9 to 11% C ... 1.11

## Low Carbon Ferrochrome Silicon

(Cr 34-41%, Si 42-49%, C 0.05% max.)  
 Contract price, carloads, f.o.b. Niagara Falls, freight allowed; lump 4-in. x down, bulk 2-in. x down, 25.75¢ per lb of contained Cr plus 12.40¢ per lb of contained Si.  
 Bulk 1-in. x down, 25.90¢ per lb contained Cr plus 12.60¢ per lb contained Si.

## Calcium-Silicon

Contract price per lb of alloy, dump delivered.  
 30-33% Ca, 60-65% Si, 3.00% max. Fe  
 Carloads ... 19.00  
 Ton lots ... 22.10  
 Less ton lots ... 23.60

## Calcium-Manganese-Silicon

Contract prices, cents per lb of alloy lump, delivered.  
 16-20% Ca, 14-18% Mn, 53-59% Si.  
 Carloads ... 20.00  
 Ton lots ... 22.30  
 Less ton lots ... 23.30

## CM52

Contract price, cents per lb of alloy, delivered.  
 Alloy 4: 45-49% Cr, 4-6% Mn, 18-21% Si, 1.25-1.75% Zr, 3.00-4.5% C.  
 Alloy 5: 50.56% Cr, 4-6% Mn, 13.50-16.00% Si, 0.75 to 1.25% Zr, 3.50-5.00% C.  
 Ton lots ... 20.75  
 Less ton lots ... 22.00

## SMZ

Contract price, cents per pound of alloy, delivered, 60-65% Si, 5-7% Mn, 5-7% Zr, 20% Fe ½ in. x 12 mesh.  
 Ton lots ... 17.50  
 Less ton lots ... 19.50

## V Foundry Alloy

Cents per pound of alloy, f.o.b. Suspension Bridge, N. Y., freight allowed, max. St. Louis, V-5: 38-42% Cr, 17-19% Si, 8-11% Mn.  
 Ton lots ... 16.50  
 Less ton lots ... 17.75

## Graphidox No. 4

Cents per pound of alloy, f.o.b. Suspension Bridge, N. Y., freight allowed, max. St. Louis, Si 48 to 52%, Ti 9 to 11%, Ca 5 to 7%.  
 Carload packed ... 18.00  
 Ton lots to carload packed ... 19.00  
 Less ton lots ... 20.50

## Ferromanganese

78-82% Mn, maximum contract base price, gross ton, lump size, f.o.b. Niagara Falls, Alloy, W. Va., Ashtabula, O.  
 F.o.b. Johnstown, Pa. ... \$225  
 F.o.b. Sheridan, Pa. ... 225  
 F.o.b. Philo, Ohio ... 225  
 Add \$2.80 for each 1% above 82%, subtract \$2.80 for each 1% below 78%.  
 Briquets—Cents per pound of briquet, delivered, 66% contained Mn.  
 Carload, bulk ... 12.45  
 Ton lots, packed ... 14.05  
 F.o.b. Etna, Clairton, Pa., per net ton \$200  
 Add \$2 for each 1% above 76%, subtract \$2 for each 1% below 74%.

## Spiegeleisen

Contract prices gross ton; lump, f.o.b.  
 16-19% Mn 19-21% Mn  
 3% max. Si 3% max. Si  
 Palmerton, Pa. \$84.00 \$85.00  
 Pgh. or Chicago \$4.00 \$5.00

## Manganese Metal

Contract basis, 2 in. x down, cents per pound of metal, delivered.  
 96% min. Mn, 0.2% max. C, 1% max. Si, 2.5% max. Fe.  
 Carload, packed ... 36.95  
 Ton lots ... 38.45

## Electrolytic Manganese

F.o.b. Knoxville, Tenn., freight allowed east of Mississippi, cents per pound.  
 Carloads ... 30.00  
 Ton lots ... 32.00  
 Less ton lots ... 34.00 to 37.00  
 Premium for hydrogen-removed metal ... 1.50

## Low-Carb Ferromanganese

Contract price, cents per pound Mn contained, lump size, del'd Mn 85-90%.  

Carloads	Ton	Less
0.07% max. C, 0.06% P, 90% Mn	28.45	30.30 31.50
0.07% max. C	27.95	29.80 31.00
0.15% max. C	27.45	29.30 30.50
0.30% max. C	26.95	28.80 30.00
0.50% max. C	26.45	28.30 29.50
0.75% max. C, 80-85% Mn, 5.0-7.0% Si	23.45	25.30 26.50

## Medium Carbon Ferromanganese

Mn 80% to 85%, C 1.25 to 1.50. Contract price, carloads, lump, bulk, delivered, per lb of contained Mn ... 21.35¢

## Silicomanganese

Contract basis, lump size, cents per pound of metal, delivered, 65-68% Mn, 18-20% Si, 1.5% max. C for 2% max. C, deduct 0.2¢.  
 Carload bulk ... 11.40  
 Ton lots ... 13.05  
 Briquet contract basis carlots, bulk delivered, per lb of briquet ... 12.65  
 Ton lots, packed ... 14.25

## Silvery Iron (electric furnace)

Si 14.01 to 14.50 pct, f.o.b. Keokuk, Iowa, or Wenatchee, Wash., \$95.50 gross ton, freight allowed to normal trade area. Si 15.01 to 15.50 pct, f.o.b. Niagara Falls, N. Y., \$93.00. Add \$1.055 per ton for each additional 0.50% Si up to and including 17%. Add \$1.00 for each 0.50% Mn over 1%.

## Silicon Metal

Contract price, cents per pound contained Si, lump size, delivered, for ton lots packed.  
 96% Si, 2% Fe ... 18.00  
 97% Si, 1% Fe ... 18.50

## Silicon Briquets

Contract price, cents per pound of briquet bulk, delivered, 40% Si, 2 lb Si briquets.  
 Carloads, bulk ... 6.95  
 Ton lots ... 8.55

## Electric Ferrosilicon

Contract price, cents per pound contained Si, lump, bulk, carloads, delivered.  
 25% Si ... 20.00 75% Si ... 14.30  
 50% Si ... 12.40 85% Si ... 15.55  
 90.95% Si ... 17.00

## Calcium Metal

Eastern zone contract prices, cents per pound of metal, delivered.  

Cast	Turnings	Distilled
Ton lots ... \$2.05	\$2.95	\$3.75
Less ton lots 2.40	3.30	4.55

## Ferrovandium

35-55% contract basis, delivered, per pound, contained V.  
 Openhearth ... \$3.00-\$3.10  
 Crucible ... 3.10-3.20  
 High speed steel (Primos) ... 3.20-3.25

Alisfer, 20% Al, 40% Si, 40% Fe, contract basis, f.o.b. Suspension Bridge, N. Y.

Carloads ... 9.90  
 Ton lots ... 11.30

Calcium molybdate, 46.3-46.6% f.o.b. Langeloth, Pa., per pound contained Mo ... \$1.15

Ferrocolumbium, 50-60% 2 in. x D contract basis, delivered per pound contained Cb.  
 Ton lots ... \$4.90  
 Less ton lots ... 4.35

Ferro-Tantalum-Columbium, 20% Ta, 40% Cb, 0.30% C. Contract basis, delivered, ton lots, 2 in. x D, per lb of contained Cb plus Ta ... \$3.75

Ferromolybdenum, 55-75%, f.o.b. Langeloth, Pa., per pound contained Mo ... \$1.32

Ferrophosphorus, electrolytic, 23-26%, car lots, f.o.b. Siglo, Mt. Pleasant, Tenn., \$3 unitage, per gross ton ... \$65.00  
 10 tons to less carload ... \$75.00

Ferrotitanium, 40% regular grade, 0.10% C max., f.o.b. Niagara Falls, N. Y., and Bridgeville, Pa., freight allowed, ton lots, per lb contained Ti ... \$1.35

Ferrotitanium, 25% low carbon, 0.10% C max., f.o.b. Niagara Falls, N. Y., and Bridgeville, Pa., freight allowed, ton lots, per lb contained Ti ... \$1.50  
 Less ton lots ... 1.55

Ferrotitanium, 15 to 18%, high carbon, f.o.b. Niagara Falls, N. Y., freight allowed, carload, per net ton ... \$17.00

Ferrotungsten, ¼ x down, packed, per pound contained W, ton lots, f.o.b. ... \$4.45

Molybde oxide, briquets or cans, per lb contained Mo, f.o.b. Langeloth, Pa. ... \$1.14  
 bags, f.o.b. Washington, Pa., Langeloth, Pa. ... \$1.12

Simanal, 20% Si, 20% Mn, 20% Al, contract basis, f.o.b. Philo, Ohio, freight allowed, per pound

Carload, bulk lump ... 14.50¢  
 Ton lots, bulk lump ... 15.75¢  
 Less ton lots, lump ... 16.25¢

Vanadium Pentoxide, 86-89% V<sub>2</sub>O<sub>5</sub> contract basis, per pound contained V<sub>2</sub>O<sub>5</sub> ... \$1.25

Zirconium, 35-40%, contract basis, f.o.b. plant, freight allowed, per pound of alloy.  
 Ton lots ... 21.00¢

Zirconium, 12-15%, contract basis, lump, delivered, per lb of alloy.  
 Carload, bulk ... 7.00¢

Boron Agents

Borosil, contract prices per lb of alloy del. f.o.b. Philo, Ohio, freight allowed, B, 3-4%, Si, 40-45%, per lb contained B ... \$5.25

Bortam, f.o.b. Niagara Falls  
 Ton lots, per pound ... 45¢  
 Less ton lots, per pound ... 50¢

Corbortam, Ti 15-21%, B, 1-2%, Si, 2-4%, Al, 1-2%, C, 4.5-7.5% f.o.b. Suspension Bridge, N. Y., freight allowed.  
 Ton lots, per pound ... 10.00¢

Ferroboron, 17.50% min. B, 1.50% max. Si, 0.50% max. Al, 0.50% max. C, 1 in. x D. Ton lots ... \$1.20  
 F.o.b. Wash., Pa.; 100 lb up  
 10 to 14% B ... 45¢  
 14 to 10% B ... 1.20  
 19% min. B ... 1.50

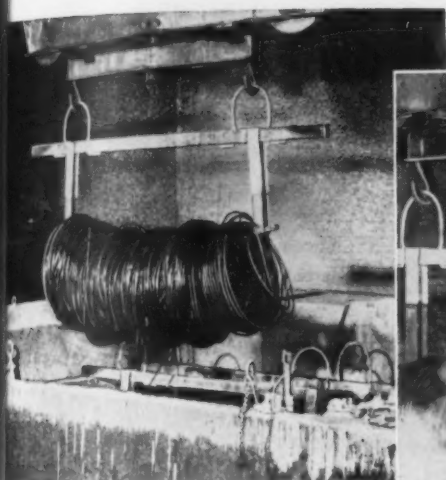
Grainal, f.o.b. Bridgeville, Pa., freight allowed, 100 lb and over.  
 No. 1 ... \$1.00  
 No. 6 ... 68¢  
 No. 79 ... 50¢

Manganese-Boron, 75.00% Mn, 15-20% B, 5% max. Fe, 1.50% max. Si, 3.00% max. C, 2 in. x D, del'd  
 Ton lots ... \$1.45  
 Less ton lots ... 1.57

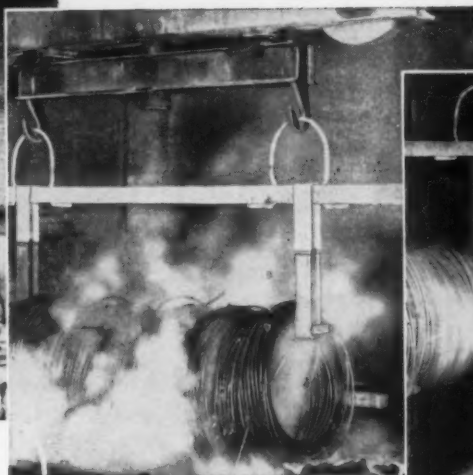
Nickel-Boron, 15-18% B, 1.00% max. Al, 1.50% max. Si, 0.50% max. C, 3.00% max. Fe, balance Ni, delivered  
 Less ton lots ... \$1.30

Silenz, contract basis, delivered.  
 Ton lots ... 45.00¢

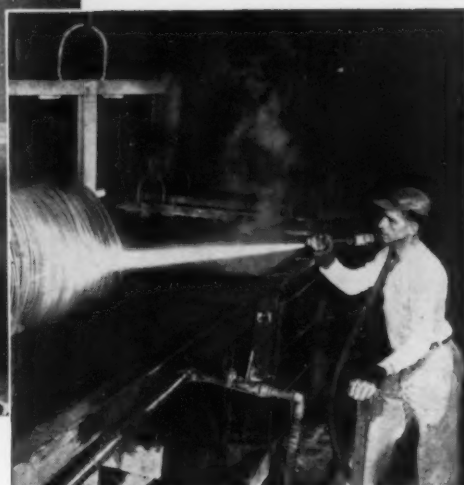
# Over 5 tons of carbon steel wire thoroughly descaled within one hour!



A yoke of 5 3/2" dia. wire is lifted from the hydride tank. (Up to 3 yokes can be treated at one time in this tank. Working dimensions are 7' x 6' x 5' 6".)



Water quench blasts off loosened scale.



Thorough descaling complete with final rinse.

## DU PONT SODIUM HYDRIDE DESCALING PROCESS

By switching to Du Pont's efficient and simplified process, a large eastern steel manufacturer was able to triple descaling capacity—with *less than half* the man power!

These and other important savings are possible with Sodium Hydride Descaling because elaborate scale breaking operations are eliminated entirely, yet uniform descaling is accomplished in the shortest possible time—no retreatments needed! And because dissimilar metals can be effectively treated in the same bath, this steel mill finds the Du Pont process ideal for descaling their quality carbon and stainless steel products indiscriminately at production line speeds.

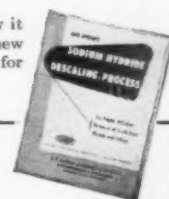
Costly rejects due to pitting or loss of gauge are avoided . . . there's never any danger of base metal

attack no matter how long the work remains in the sodium hydride bath! Dimensional accuracy is maintained, and subsequent drawing operations can be carried out to closer tolerances. Die life, too, is increased.

Find out how Du Pont's Sodium Hydride Process can improve your descaling operations. Just get in touch with our nearest district office or send in the coupon below.

**DISTRICT AND SALES OFFICES:** Baltimore • Boston • Charlotte • Chicago  
Cincinnati • Cleveland • Detroit • Kansas City\* • Los Angeles • New York  
Philadelphia • Pittsburgh • San Francisco.  
\*Baroda & Page, Inc.

*More detailed information* about the process—how it works, what it can do for you—can be found in our new book. Call our nearest office or use the coupon below for your copy.



### DU PONT Sodium hydride process for positive descaling



BETTER THINGS FOR BETTER LIVING . . . THROUGH CHEMISTRY

E. I. du Pont de Nemours & Co. (Inc.)  
Electrochemicals Department IA-528  
Wilmington 98, Delaware

Please send me more information about the Du Pont Sodium Hydride Descaling Process: advantages, applications, equipment used. I am interested in descaling \_\_\_\_\_

Name \_\_\_\_\_ Position \_\_\_\_\_

Firm \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_



good machinery

**REBUILT**

to exacting  
standards

18" x 54" centers MONARCH Lathe, motor in base, taper attachment, chucks  
25/40" x 8" centers MONARCH Model "N" Lathe, new 1935  
28" x 15" centers BERTRAM (Niles patterns) Timesaver Engine Lathe, 2 carriages, rapid traverse, AC-MD, 1943  
36" x 12" centers AMERICAN Heavy Duty 16 Speed Geared Head Lathe, AC-MD  
42" x 96" centers NILES Timesaver Heavy Duty Lathe, 42" swing over ways, rapid traverse, anti-friction head, AC-MD  
60" x 20" NILES BEMENT POND Geared Head Engine Lathe, rapid traverse  
No. 3A WARNER & SWASEY Turret Lathe, 6 1/4" hole in spindle, bar feed, chuck, tooling, new 1942  
62" BULLARD Vertical Boring Mill, 2 swivel rail heads, power rapid traverse, AC-MD  
100" NILES Heavy Duty Vertical Boring Mill, 2 swivel heads, rapid traverse, AC-MD  
No. 3-24 CINCINNATI Plain Hydromatic Mill, AC-MD  
No. 4 KEARNEY & TRECKER Plain Horizontal Mill, No. 50 taper, motor in base, rapid traverse  
No. 4 CINCINNATI High Power Vertical Mill, No. 50 taper, power rapid traverse, AC motor  
No. 4H KEARNEY & TRECKER Vertical Mill, new 1944  
No. 12 BROWN & SHARPE Plain Automatic Production Mill, AC-MD, late type  
25A HEALD Rotary Surface Grinder, 24" diameter magnetic chuck, AC-MD  
No. 6G SELLERS Drill Grinder, new 1941  
36" OHIO Heavy Duty V Ram Shaper, new 1944, AC-MD  
1 1/2" LANDIS Bolt Threader, leadscrews, AC-MD  
75 Ton HENRY & WRIGHT Double Crank Dieing Machine, roll feed & scrap cutter  
600 Ton CHAMBERSBURG Wheel Press, cast steel frame, inclined, AC-MD  
30" MORTON, Hydraulic Keyseater, new 1942  
Type "D" BARBER COLMAN Gear Hobber, new 1945, practically new  
No. 9A MARVEL Hacksaw, 10" x 10" capacity, bar feed, AC-MD

**O'Connell**  
MACHINERY CO.  
of BUFFALO, n. y.  
1693 GENESEE ST.

## The Clearing House

NEWS OF USED AND REBUILT MACHINERY

**Are Not Moving . . .** Dealers in used electrical equipment in the New York area report their business has slacked off recently. They attribute this decline to a general slowing of the overall business tempo.

Medium-sized motors continue to be particularly hard to move, but there appears to be some demand for special electrical equipment. A few dealers report an increase in the number of inquiries in the last 10 days but are unable to determine as yet whether this means that sales are really going to pick up.

**Get More for Less . . .** Prices on almost all types of units have have dropped and as one dealer put it: "Right now customers are asking and getting more for their money than they have for a long time."

Volume of electrical repair work around New York is also said to be slumping and most of the shops that had 2 to 3-week order backlogs a few months ago have worked them off.

**No Change Expected . . .** Most dealers see no reason to expect any sudden change in market conditions in the near future. The general feeling is that anyone who wants business will have to make a concerted, aggressive effort to get it.

Walter Prise, co-chairman of National Industrial Service Assn., Inc., reports that more than 1100 members were expected to attend the association's 20th annual convention held at the Hotel Statler in New York, May 24-28. Featured speaker was Clayton Rand, editor, *The Dixie Guide*, Gulfport, Miss.

**Want Shears . . .** Used machinery dealers around Chicago report that sheet forming equipment, shearing and cutting units, and certain types of screw machines are in greater demand.

Shortage of steel is given as one of the reasons for the increased interest in steel handling equipment

as the scarcity has forced some metalworking firms to buy steel from sources other than warehouses. Normally the warehouses do all the necessary shearing and slitting, but now that they are getting steel from outside sources, some metalworking firms are installing their own shearing and cutting equipment.

**Won't Expand . . .** Stampers in the Chicago area are doing a good business but seem content to replace equipment rather than make any major expansions. The same condition exists in the fastener industry.

At least two more "For Rent" signs appeared on Machinery Row recently.

At a meeting of the Chicago chapter of the Machinery Dealers National Assn., the following officers were elected: Harry Segal, chairman; Jack Segal, 1st vice-chairman; Charles Goldstein, 2nd vice-chairman; Gil Kotler, secretary; and Joe Velick, treasurer.

**Still Settling . . .** Report on the used machinery market on the West Coast is again pessimistic. Sales of new machine tools are slipping and purchases of used equipment are following the same pattern.

Some dealers are looking forward to the traditional small pickup in sales around June 15. As the fiscal year comes to a close, government agencies sometimes find that they have a small surplus of unspent funds and dealers are hoping that some of this money may be spent on tools.

**Small Shops Close . . .** Shutdown of a few small machine shops in California is not helping the market, and dealers report the increasing availability of new machine tools is further depressing demand for used equipment.

Apprehension over government stretchouts appears to be causing small machine shops to hold back until they have new contracts in their hands.